




CORE ANALYSIS

The market as an instrument of planning in sustainability capitalism

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Abstract

This article seeks to unpack the potential and limits of markets as instruments of economic planning in sustainability capitalism. Recent policies for sustainability transitions in the United States (USA) and the European Union (EU) (eg, Infrastructure Law, EU Green Deal) have signaled aspirations for a more prominent role of the state in coordinating the economy, while still relying primarily on market mechanisms for such coordination. Yet, could the market itself be conceptualised and structured as a political instrumentality for the achievement of social objectives? An important part of the puzzle of sustainability transitions is the transportation sector, and specifically the transition to Electric Vehicles, or New Energy Vehicles (NEVs). I explore the comparative legal constructions of markets for NEVs in China – the current global leader in NEVs – the USA, and the EU. Drawing from this case study, I first argue that law makes planning possible within markets, as the functional power of market processes can be strategically deployed for the achievement of politically set objectives. Acknowledging the deliberate and artificial character of markets raises the question of what we want markets for, broadening the scope of the political possibilities enclosed in them. I, then, proceed to challenge the enduring argument of the epistemic deficit of central planners, which morphs into prescriptions of decentralisation. I show that arguments against legal centralism and planning cannot stand on just epistemological grounds and are inevitably political. Finally, I attempt to outline the limits of planning within markets – and thus, to a certain extent, the limits of the constitutive function of law – for broader projects of social transformation.

Keywords: market; sustainability capitalism; New Energy Vehicles; planning; industrial policy; Green Deal

1. Introduction

There is momentum for centralised economic coordination. The COVID-19 pandemic, the pooling of resources associated with the war in Ukraine, China's global economic rise, and the increasing awareness of the urgency for overhauling climate action have all brought the state and its control over the economy into the foreground. In the legal field, scholarship across both sides of the Atlantic has increasingly focused on the role of national and international law in constituting the economy.¹

¹J Britton-Purdy, Amy Kapczynski and David S Grewal, 'Law and Political Economy: Toward a Manifesto' (2017) <<https://lpeproject.org/blog/law-and-political-economy-toward-a-manifesto/>>; J Britton-Purdy et al., 'Building a Law-and-Political-Economy Framework: Beyond the Twentieth-Century Synthesis' 129 (2020) *The Yale Law Journal* 1784; A Harris and JJ Varelas, 'Law and Political Economy in a Time of Accelerating Crises' 1 (1) (2020) *Journal of Law and Political Economy* 1; PF Kjaer (ed), *The Law of Political Economy: Transformations in the Function of Law* (Cambridge University Press 2020); A Chadwick, *Law and the Political Economy of Hunger* (Oxford University Press 2019); I Kampourakis, 'Bound by the Economic Constitution: Notes for "Law and Political Economy" in Europe' 1 (2) (2021) *Journal of Law and Political Economy* 301.

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Dispelling narratives of ‘natural’, ‘neutral’, or ‘free’ markets, law and political economy scholarship has emphasised the legal constitution of capitalism, highlighting that any market structure is a deliberate, political artifact traceable to the choices around the allocation of legal entitlements and the background rules that ground the bargaining power of different actors.² Similarly, legal institutionalist analyses have underscored the impossibility of an unregulated economy as all aspects of social and economic life are undergirded by legal rules – themselves ultimately a matter of state power.³ Drawing inspiration from the interventionist state of the ‘trente glorieuses’, this current of scholarship underlines the state’s capacity to radically rearrange rules and institutions to address socio-economic crises, including the existential threat of climate change. Along similar lines, economists have made calls for a ‘big green state’,⁴ ‘massive green public investment’,⁵ a ‘progressive carbon tax’,⁶ or – perhaps more mildly – for ‘green industrial policy’⁷ and a ‘mission economy’⁸ in energy transitions.

This momentum is not restricted to the level of academic discourse. Albeit far from representing a paradigm shift, recent policies for sustainability transitions in both the USA and the EU, such as the Infrastructure Law or the Inflation Reduction Act and the EU Green Deal respectively, have signaled emerging aspirations for government-led industrial policies, as well as a turn to more ambitious fiscal policies.⁹ Even if these policies may not prove sufficient in steering economic production and allocation of investment beyond profit maximisation and towards the achievement of sustainability goals, they raise a question about the potential and shortcomings of using markets as instruments of planning – a question I will be addressing throughout this article.

An important part of the puzzle of sustainability transitions is the transportation sector, and specifically the transition from Internal Combustion Engine Vehicles (ICEVs) to Electric Vehicles,

²See, indicatively, and not necessarily under the label ‘law and political economy’, DS Grewal, ‘The Laws of Capitalism’ 128 (2014) Harvard Law Review 626; DS Grewal, ‘The Legal Constitution of Capitalism’ in H Boushey, JB de Long and M Steinbaum (eds), *After Piketty: The Agenda for Economics and Inequality* (Harvard University Press 2017) 471; J Purdy and David S Grewal, ‘Law and Neoliberalism’ 77 (4) (2014) Law and Contemporary Problems 1; K Pistor, *The Code of Capital: How the Law Creates Wealth and Inequality* (Princeton University Press 2019); T Piketty, ‘Putting Distribution Back at the Center of Economics: Reflections on Capital in the Twenty-First Century’ 29 (2015) Journal of Economic Perspectives 67; H Dagan et al., ‘The Law of the Market’ 83 (2) (2020) Law and Contemporary Problems i.

³S Deakin et al., ‘Legal Institutionalism: Capitalism and the Constitutive Role of Law’ 45 (1) (2017) Journal of Comparative Economics 188 at 189.

⁴D Gabor, ‘Private Finance Won’t Decarbonise Our Economies – But the ‘Big Green State’ Can’ (*The Guardian*, 4 June 2021) <<https://www.theguardian.com/commentisfree/2021/jun/04/private-finance-decarbonise-economies-green-state>>.

⁵D Gabor and I Weber, ‘COP26 Should Distance Itself from Carbon Shock Therapy’ (*Financial Times*, 8 November 2021) <<https://www.ft.com/content/1d2dc4c4-4de2-4e87-ab1f-574a32c5e0e2>>.

⁶P Thomas, ‘We Need a Progressive Carbon Tax’ (2015) <<https://www.sciencespo.fr/public/en/content/progressive-carbon-tax-needed.html>>.

⁷D Rodrik, ‘Green Industrial Policy’ 30 (3) (2014) Oxford Review of Economic Policy 469.

⁸M Mazzucato, *Mission Economy: A Moonshot Guide to Changing Capitalism* (First US edition, Harper Business 2021) On how the private sector cannot innovate without the public sector giving it purpose and direction, see also M Mazzucato and M McPherson, ‘The Green New Deal: A Bold Mission-Oriented Approach’ IPP Policy Brief (2018) <https://www.ucl.ac.uk/bartlett/public-purpose/sites/public-purpose/files/iipp-pb-04-the-green-new-deal-17-12-2018_0.pdf>.

⁹See, Section 3. In addition, the proposed US Green New Deal, sponsored by Rep. Alexandria Ocasio-Cortez, has also made ripple effects in pushing the boundaries of ‘green Keynesianism’. For a defense of ambitious, state-focused agendas of sustainability transformations that go way beyond current industrial policies such as the ones described in this article, see R Pollin, ‘De-Growth vs a Green New Deal’ 112 (2018) New Left Review 5. On how economic planning has returned in the public discourse, see indicatively R Toplensky, ‘Replacing Russian Gas in Europe Will Require State Planning’ (*The Wall Street Journal*, 7 March 2022) <<https://www.wsj.com/articles/replacing-russian-gas-in-europe-will-require-state-planning-11646665213>>; ‘Netherlands ramps up plan for doubling offshore wind capacity by 2030’ <<https://www.reuters.com/business/environment/netherlands-ramps-up-plan-doubling-offshore-wind-capacity-by-2030-2022-03-18/>>; W Horobin and FD Beaupuy, ‘Macron Says France Must Regain Control of Some Energy Firms’ (2022) <<https://www.bloomberg.com/news/articles/2022-03-17/macron-says-french-state-must-take-control-of-some-energy-firms>>.

or New Energy Vehicles (NEVs).¹⁰ China recognised from early on the potential behind this transition and, over the span of a decade, it created the world's largest electric vehicle market by employing a planned, government-led approach, involving purchase subsidies, regulations favoring NEVs in urban environments, foreign direct investment, and mandatory NEV quotas in automobile manufacturing.¹¹ The USA and the EU have also sought to speed up the production and diffusion of NEVs, going beyond a mere reliance on price signals and consumer preferences, with the USA aiming to fund a nationwide charging network and the EU announcing plans to cut vehicle CO₂ emissions by 55 per cent by 2030 and eliminate them by 2035.¹² With the shift to NEVs, battery production is also increasingly becoming a field of economic and geopolitical contestation, as the USA and the EU lay out ambitions for government-led industrial policies that could compete with China's current success.¹³ In all three cases, while industrial policies eventually rely on market processes for the transition to NEVs, there are significant elements of public planning. Planning, in these cases, goes beyond nudging or incentives and involves instead deploying – albeit in different degrees – public investment and regulatory and market coercion to generate market dynamics in the service of the broader social objective of sustainable transportation. As such, I suggest that the NEV case study offers a good illustration of how the constitutive function of law may be unpacked as an avenue for planning and central coordination of the economy within markets. Thus, the paper starts from a position of immanence – from what is already there, as opposed to an ideal – to draw analytical conclusions and tentative normative implications. Importantly, the case study of NEVs is chosen to flesh out this interaction between law, planning and markets and not to argue that the transition to NEVs is per se the kind of climate action that could thwart the devastating consequences of climate change. In fact, the magnitude and durability of the beneficial effects of NEVs for the climate is contested.¹⁴ In addition, the mineral sourcing required for their manufacturing paints a dire picture not only from an environmental but also from a social justice perspective.¹⁵ Yet, considering that the transition to NEVs has been politically set as an objective and a concretisation of sustainability, what is important for this article are the legal means employed for this transition, regardless of the latter's content and potential to actually address climate change.

I explore the comparative transition to NEVs as a way of intervention in debates around the constitutive role of law for the economy. More specifically, I seek to unpack the role of law for economic planning – with *planning* being understood as the central coordination of the economy to direct production and investment beyond contingent, atomised, profit-driven decision-making.

¹⁰The Chinese government designates as NEVs battery electric vehicles, plug-in hybrid electric vehicles (PHEVs), and fuel cell electric vehicles, ICCT, 'Driving a Green Future: A Retrospective Review of China's Electric Vehicle Development and Outlook for the Future' (2021) <<https://theicct.org/wp-content/uploads/2021/06/China-green-future-ev-jan2021.pdf>> at x.

¹¹See, Section 2.

¹²See, Section 3.

¹³The White House, 'Building Resilient Supply Chains, Revitalizing American Manufacturing, and Fostering Broad-Based Growth: 100-Day Reviews under Executive Order 14017' (2021) <<https://www.whitehouse.gov/wp-content/uploads/2021/06/100-day-supply-chain-review-report.pdf>>; European Commission, 'EUROPE ON THE MOVE: Sustainable Mobility for Europe: Safe, Connected and Clean' (2018); 'European Commission and U.S. Department of Energy Support Collaboration between the European Battery Alliance and U.S. Li-Bridge Alliance to Strengthen Supply Chain' (2022).

¹⁴According to C-W Su et al., 'Can New Energy Vehicles Help to Achieve Carbon Neutrality Targets?' 297 (1) (2021) *Journal of Environmental Management* 113348, NEVs can only mitigate air pollution when adopted in significant numbers. At the same time, global demand for lithium is expected to far outstrip supply in the coming years, posing a major challenge to precisely this type of diffusion, see A Williams, 'Powering Electric Cars: The Race to Mine Lithium in America's Backyard' (*Financial Times*, 10 May 2022) <<https://www.ft.com/content/dd6f2dd0-1dad-4747-8ca4-cb63b026a757>>.

¹⁵M Stone, 'The EV Boom Is Being Fueled by Underpaid, Underfed Cobalt Miners' (*The Verge*, 15 February 2022) <<https://www.theverge.com/2022/2/15/22933022/cobalt-mining-ev-electriv-vehicle-working-conditions-congo>>; T Riofrancos, 'Shifting Mining From the Global South Misses the Point of Climate Justice' (*Foreign Policy*, 7 February 2022) <https://foreignpolicy.com/2022/02/07/renewable-energy-transition-critical-minerals-mining-onshoring-lithium-evs-climate-justice/?tpcc=recirc_latest062921>.

Although planning, as I show, unfolds in a spectrum and may consist of different instruments and degrees of coercion, it involves, by definition, a certain transfer of decisions concerning production and capital formation from the sphere of consumers to political sovereignty. This also entails subsuming legal rationalities, such as those associated with contractual or entrepreneurial freedom, to overarching political objectives – among which sustainability transitions. The references to ‘political sovereignty’ and ‘political objectives’ highlight that the agency of planning needs to be conceived in terms broader than those of ‘the state’ – it must refer, instead, to the public power that grounds the institutions that enable collective *self-legislation*, whether these be at a national, supranational, or local level.¹⁶

I first suggest that law makes planning possible not only *beyond* but also *within* markets – this not being a normative argument in favour of markets in the abstract, but a restatement of the political possibilities enclosed in them. Law’s constitutive role in the economy – through its allocation of legal entitlements and coercive powers – reveals a political component inherent in any form of organisation of production. I, then, proceed to challenge the enduring argument of the epistemic deficit of central planners, which morphs into prescriptions of decentralisation. I show that arguments against legal centralism and planning cannot stand on just epistemological grounds and are inevitably political. Finally, I attempt to outline the limits of planning within markets – and thus, to a certain extent, the limits of the constitutive role of law – for broader projects of social transformation. It is important to know that this article seeks to disentangle the prospects of legal instruments for economic planning within markets at a conceptual level. It is, thus, limited, in that it focuses on the distributive and power-conferring effects of market regulation as part of developing industrial strategies, and not on the complementarity or necessity of fiscal, credit, or tax instruments for planning within markets.

Sketching the contents of this article, a key argument is that the market can and does function as an instrument of planning for the purpose of achieving politically set objectives, including those associated with sustainability transitions. However, this does not mean endorsement of current market-based approaches for decarbonisation that frame climate change as simply an instance of market failure – such as non-financial disclosures or carbon pricing.¹⁷ Instead, my goal is to use the NEV case study to show the potential but also the limits of the malleability of markets as tools for systemic transformation, taking into consideration that carbon intensive activities have been woven into the fabric of social and economic life. Approaching the market as a deliberate product of legal and institutional arrangements leads to the conclusion that state coordination of economic activity is inevitable and, thus, that dismissing ambitious policies on the grounds of ‘market distortion’ presupposes an idealised understanding of markets.¹⁸ Crucially, the deliberate and artificial character of markets raises the question of what we want markets *for*. If the market is valued not because of some intrinsic attributes (eg, that it is freedom-enhancing) but rather because of its functional capacity to deliver on certain social goals, then the coerciveness of market mechanisms could form part of the planning puzzle, expanding the possibilities of democratic control of the economy.

One enduring opposition to planning has been the epistemological challenge posed by F.A. Hayek,¹⁹ according to which central planners are unable to collect and act upon the dispersed

¹⁶This draws from the Hegelian notion that ‘the state’ refers to the institutions of public power that can make the idea of freedom ‘actual’, see GWF Hegel, *Outlines of the Philosophy of Right* (Oxford University Press 2008) §57, 69. See, also M Hägglund, *This Life: Secular Faith and Spiritual Freedom* (Anchor Books 2020) 230–7.

¹⁷For an example, see IMF, ‘IMF Strategy to Help Members Address Climate Change Related Policy Challenges—Priorities, Modes of Delivery, and Budget Implications’ Policy Paper No. 2021/057 (2021).

¹⁸K Pistor, ‘The Myth of Green Capitalism’ (*Social Europe*, 27 September 2021) <<https://socialeurope.eu/the-myth-of-green-capitalism>> For an example of such a critique, see H-W Sinn, ‘Europe’s Green Unilateralism’ (*Project Syndicate*, 23 June 2021), for whom current EU policies ‘violate the law of one price, the normative bedrock of economics’ <<https://www.project-syndicate.org/commentary/european-union-misguided-green-unilateralism-by-hans-werner-sinn-2021-07>>.

¹⁹Indicatively, FA Hayek, ‘The Use of Knowledge in Society’ 35 (1945) *American Economic Review* 519. See below, Section 5.

and localised knowledge that is necessary for the allocation of productive resources. This not only inspires current neoliberal critiques of industrial policy but has also, counter-intuitively, infused tenets of critical legal scholarship, morphing into opposition to legal centralism. However, the digitalisation of the economy and the extensive forms of private economic planning, as well as the inevitably political and collective nature of certain forms of knowledge – such as what constitutes ‘a need’ – undercut the epistemic deficit thesis as an axiomatic statement. In other words, central planners could acquire, and in certain ways already possess, the knowledge required to direct an economy beyond individualised decision-making and the profit motive. If the deliberate, legal, and institutional foundations of markets reveal that a degree of planning is inevitable even with markets, then there is no conceptual but only a political argument against planning.

While planning within markets may orchestrate sustainability transitions, it is also bound to encounter structural limits. Certain limits relate to fundamental qualities markets possess. For example, any planning within markets will have to contend with the logic of profit being the motivational force behind market operations. While this logic might be instrumentalised to achieve goals related to sustainability transitions, as for example through demand-inducing subsidising discussed in this article, it precludes broader socio-ecological transformations that could be grounded on nonprofit-related motivations of individual action. Other limits relate to the original institutional setup upon which planning seeks to become functional, as market freedoms and property rights might enjoy rigid international and constitutional protection. They also relate to the social power underlaying markets, as private actors are likely to resist projects of grand realignment. Planning within markets also operates at the level of exchange relations and not production relations. As this leaves exploitation in social relations of production untouched, broader visions of social transformation become dependent on expanding modes of decommodification – which, nevertheless, may coexist with strategic and contextual deployments of markets for the achievement of social objectives.

Planning within markets has a rich history both in different modes of capitalist planning – such as indicative planning, macroeconomic management, or industrial policy – and as a key element of market socialism.²⁰ In contrast to competitive, profit-driven markets, where production and investment of resources are determined by individual criteria of profitability, conscious economic planning has been employed to produce egalitarian outcomes in different degrees and forms, ranging from macroeconomic management to welfare and redistribution, to socialisation of productive property. While this article is framed as an analytical contribution on the potential and limits of planning *within* markets and *by means* of market instruments, tapping on these histories revamps the broader, normative case to be made for conscious economic planning, especially in the face of the existential threat posed by climate change. Planning enables the coordinated channeling of resources to collectively determined preferences in a way that would be impossible if coordination was left to individualised decision-making around consumption and investment. Importantly, this holds true also – if not more so – for planning *beyond* markets and for expansive regimes of decommodification. The universality of climate change and the limits imposed by planetary boundaries strengthen the argument for conscious and deliberate economic designs that ensure that resources are used in ways that can make such transitions possible at the necessary pace.²¹ Furthermore, even without taking into consideration possible material consequences of allocative efficiency, equality, or social justice, conscious economic planning has an intrinsic value

²⁰On capitalist planning, including wartime planning, macroeconomic management, indicative planning, and industrial policy, see P Devine, *Democracy and Economic Planning* (Polity Press 1988) 29. ‘Market socialism’ is a term that has been used to describe different institutional formations, or to point to different normative visions of economic organisations. While arguably China, starting from Deng’s reform period, constitutes one iteration of market socialism, historical examples are also found in Yugoslavia’s self-managed economy and Hungary’s New Economic Mechanism. For a discussion of market socialism and capitalist planning as forming spectrum that is defined by differences of degree and not substance, see Section 4B.

²¹On planetary boundaries, see D French and LJ Kotzé (eds), *Research Handbook on Law, Governance and Planetary Boundaries* (Research Handbooks in Environmental Law, Edward Elgar Publishing 2021).

as a manifestation of self-governance and exercise of public autonomy.²² Contrary to the normative vision of market ordering where individuals submit to the ‘sublime’ logic of price signals and impersonal results of the market process, economic planning constitutes an assertion of self-determination and confidence in the capacity of human reason, deliberation, and collective knowledge to arrange the forms of social organisation that govern people’s lives.²³

In Section 2, I will discuss comparative approaches of China, the USA, and the EU regarding the transition to NEVs, showcasing how market instruments have been employed as tools for the achievement of social objectives. In Section 3, I will explore the role of law and regulation for planning within markets. In Section 4, I address the epistemological challenge against planning and centralised economic coordination. In Section 5, I investigate the limits of planning within markets. This is followed by a Conclusion.

2. Planning a market: China’s strategy for creating a new energy vehicles market

A. The market as an instrument of governance: from price reforms to NEV subsidies

Although the Chinese economy is defined by state ownership, a long trajectory of economic policy reforms has accorded to the market a prominent role in allocating resources. Following Mao’s death in 1976, the new leadership of the Communist Party under Deng Xiaoping initiated a program of experimental gradualism that sought to introduce market elements in the Chinese economy.²⁴ The pervasive influence of the neoliberal economic paradigm notwithstanding, the reform program did not aspire to orchestrate a transition to a capitalist market economy. Instead, it consciously sought to operate within existing structures of state ownership and state control of financial resources, while remaining ideologically within the framework of socialist thought and tradition.²⁵ In theoretical terms, the view that was gaining ground was that economic planning and the market were wrongly understood as mutually exclusive, when they could possibly be synergistic.²⁶ Production targets solely set by means of central planning were perceived as susceptible to arbitrariness and, therefore, as not sufficiently geared towards social needs.²⁷ Introducing competition among SOEs, allowing market pricing for certain commodities and permitting a wholly private sector in small scale production, trade, and services, combined with fiscal decentralisation and openness to foreign investment became the key axes of the reform program.²⁸

²²On how private autonomy is ‘co-original’ and necessarily depends upon public autonomy, see J Habermas, *Between Facts and Norms* (Polity Press 1996).

²³J Whyte, ‘Calculation and Conflict’ 119 (1) (2020) *The South Atlantic Quarterly* 31 at 33, who also cites P Hallward, ‘The Will of the People: Notes towards a Dialectical Voluntarism’ 155 (2009) *Radical Philosophy* 17 on the insistence on ‘a deliberate, emancipatory and inclusive process of collective self-determination’.

²⁴The spirit of the reform program has been traditionally illustrated by the Chinese proverb ‘crossing the river by touching the stones’. As Isabella Weber highlights, the reform program was also a reinstatement of economics, following the Cultural Revolution. In this historical setting, the turn to economics constituted an ideological shift within socialism transition debates. It marked a turn away from Maoist thought, where the key points for a socialist transition were political principles and mass mobilisation, to the Leninist paradigm, according to which priority had to be accorded to economic development. I Weber, *How China Escaped Shock Therapy: The Market Reform Debate* (Routledge Studies on the Chinese Economy, Routledge 2021) 115–6. At the same time, a renewed emphasis was placed on law, which was also considered essential for socialist modernisation. The aim was to replace the ‘rule of persons’ by the ‘rule of law’, see CW-H Lo, ‘Socialist Legal Theory in Deng Xiaoping’s China’ 11 (2) (1997) *Columbia Journal of Asian Law* 469. However, the durability of this shift has been questioned, see C Minzner, ‘China’s Turn Against Law’ 59 (4) (2011) *The American Journal of Comparative Law* 935.

²⁵D Harvey, *A Brief History of Neoliberalism* (Oxford University Press 2005) 123, Weber (n 24) at 7.

²⁶L Guoguang and Z Renwei, ‘Relationship Between Planning and the Market Under Socialism’ in GC Wang (ed), *Economic Reform in the PRC: In Which China’s Economists Make Known What Went Wrong, Why, and What Should Be Done About It* (Westview Press, Routledge 1982) 89.

²⁷*Ibid.*, at 89.

²⁸See, Harvey (n 25) at 121.

Price reform did not mean thorough price liberalisation. Contrary to the logic of the popular, at the time, ‘shock therapy’ that advocated immediate price liberalisation, People’s Republic of China (PRC) continued to plan the industrial core of the economy, setting set the prices of essential goods while liberalising the prices of surplus output and nonessential goods.²⁹ Discussions around reform suggested that, ‘under the guidance of state planning, enterprises should consciously employ the law of value to set prices’.³⁰ Although since then the percentage of prices that are set or guided by the government has dropped,³¹ China retains controls for major commodities, like corn or certain metals. The conceptual disassociation of market economy from capitalism also entailed an understanding of price controls as tools that can be employed for guiding and directing the market economy. Economic theorists like Liu and Zhao, albeit welcoming the market opening, conceded that relying solely on consumer preferences (and thus demand and supply) would not necessarily lead to the optimal allocation of resources.³²

It is in the light of such a historical understanding of the market as a malleable instrument of governance that the creation of a market for NEVs should be analysed. A crucial step for the creation of a market was a form of price engineering that would manipulate demand and supply. In the eyes of the planners, the NEV industry had to be heavily subsidised to decrease upfront purchasing costs and artificially induce consumer demand, which in turn would drive private investment. As part of its broader government-led industrial policy, the state also expanded financial support for research and development, including significant subsidies and supply chain access to critical minerals for battery manufacturing.³³ The original NEV pilot program was launched in the period 2009–2012 and focused both on public and on private procurement.³⁴ Financial subsidies were provided to encourage NEV procurement through direct payments to approved auto manufacturers on the basis of fuel-saving capacity and, later on, electric range.³⁵ The subsidies were eventually coupled with further monetary incentives for consumers, including purchase tax exemptions, vehicle registration tax exemptions, and insurance discounts, as well as import duty reduction for NEV parts and equipment for producers.

Subsidies have generally been praised for their effectiveness in instigating consumer demand, driving research and development, and stimulating the development of the NEV

²⁹Weber (n 24) at 7.

³⁰H Jianzhang, ‘The Current Economic Policies of China’ in GC Wang (ed), *Economic Reform in the PRC: In Which China’s Economists Make Known What Went Wrong, Why, and What Should Be Done About It* (Westview Press, Routledge 1982) 76.

³¹For the distinction between government-set and government-guided prices, see ‘Price Law of the People’s Republic of China’ (1997).

³²Guoguang and Renwei (n 26), 101. Along these lines, Giovanni Arrighi in his analysis of China’s economic policies also underlines that market reforms did change that ‘capitalist interests were subordinated to the national interest’, G Arrighi, *Adam Smith in Beijing: Lineages of the Twenty-First Century* (Verso 2008) 361.

³³Y Buravleva, D Tang and BJ Bethel, ‘Incentivizing Innovation: The Causal Role of Government Subsidies on Lithium-Ion Battery Research and Development’ 13 (15) (2021) Sustainability 8309; K Bradsher and M Forsythe, ‘Why a Chinese Company Dominates Electric Car Batteries’ (*New York Times*, 22 December 2021) <<https://www.nytimes.com/2021/12/22/business/china-catl-electric-car-batteries.html>>. Battery manufacturing is also a key aspect of China’s ‘Made in China 2025’ Strategy, designed to upgrade the manufacturing capabilities of Chinese industries, see ‘China to invest big in ‘Made in China 2025’ Strategy’ <http://english.www.gov.cn/state_council/ministries/2017/10/12/content_281475904600274.htm>. On how the national battery industry benefited from the practice of publishing lists of battery makers that met technical standards, as subsidies for NEV manufacturers were dependent on the procurement of batteries from this list, see E Huang, ‘China’s Breaking up the EV Battery Monopoly It Carefully Created’ (2019) <<https://qz.com/1651944/china-ends-policy-steering-ev-makers-to-local-battery-firms/>>. This model is being revised as part of the transition to ‘market dominance’, see below Section 2D.

³⁴Government subsidies constitutes the earliest incentive policy in China, launched by the project ‘Ten Cities, One Thousand Vehicles’. See, W Li, M Yang and S Sandu, ‘Electric Vehicles in China: A Review of Current Policies’ 29 (8) (2018) Energy & Environment 1512–7.

³⁵For a numerical values of subsidies, see *Ibid.*, at 1518.

industry.³⁶ At the same time, it has been suggested that subsidies have led to the dependence of production enterprises, with some enterprises even resorting to fraud to benefit from such schemes.³⁷ Other objections have been that the subsidies program has not been overall welfare maximising, as the costs exceed the benefits,³⁸ or that the effect of subsidies for NEV diffusion is anyway significantly weaker than that of key technological breakthroughs.³⁹

Public investment has also increasingly focused on public charging infrastructure.⁴⁰ For this, China has not only relied on subsidies but has also involved the utility companies State Grid and China Southern Grid. The government also announced an ambitious ‘new infrastructure’ plan, which lists charging infrastructure among its top priorities, enabling administration at the local level (ie, cities) to install about 1.2 million chargers by 2025.⁴¹ Public investment and market incentives for consumers and producers have been crucial in artificially constructing a market for NEVs. Yet, any success of market incentives has to be seen in tandem with the relevant regulatory controls deployed by China.

B. Creating the NEV market by means of regulatory controls and incentives

Regulatory controls have been not only commonplace during PRC’s history but also necessary elements for the formation of markets in post-Maoist China. A good illustration is how price reform was tied to the decollectivisation of agriculture, as households were accorded the right to sell any surplus over the required quota to the collective at market prices. The subsequent rise of agricultural production and the accrual of savings by the agricultural population led to the formation of Township and Village Enterprises (TVEs), the unexpected success of which was crucial in the embedment of market competition and entrepreneurialism.⁴² Yet, the emergence and the success of TVEs would have likely not been possible without the mobility controls imposed by the strict household registration system that dated from 1955.⁴³ Designed as a mechanism to maintain the gaping wealth disparities between rural and urban populations, the household registration system restricted internal mobility. This made TVEs the sole channel that could canalise the accumulated wealth that resulted from the agricultural reform.⁴⁴ In that way, the development of a socialist market economy was built upon and made possible by a substratum of top-down regulatory controls.

Regulatory controls and immunities have also been crucial for the creation of the NEV market, even if the subsidies program has been more on the spotlight. The first and most important of such

³⁶Z Deng and P Tian, ‘Are China’s Subsidies for Electric Vehicles Effective?’ 41 (4) (2020) *Manage Decis Econ* 475; C Jiang et al., ‘The Effectiveness of Government Subsidies on Manufacturing Innovation: Evidence from the New Energy Vehicle Industry in China’ 10 (16) (2018) *Sustainability* 1692.

³⁷Y He, W Le and Y Zhong, ‘Can Subsidies for New Energy Vehicles Drive Sales Growth? Based on the Empirical Study of PVAR Model’ (2019) *International Conference on Industrial Engineering and Systems Management* 511.

³⁸C-W Chen, W-M Hu and CR Knittel, ‘Subsidizing Fuel-Efficient Cars: Evidence from China’s Automobile Industry’ 13 (4) (2021) *American Economic Journal: Economic Policy* 152.

³⁹S-C Ma, Y Fan and L Feng, ‘An Evaluation of Government Incentives for New Energy Vehicles in China Focusing on Vehicle Purchasing Restrictions’ 110 (2017) *Energy Policy* 609.

⁴⁰Empirical research has suggested that the socially optimal solution regarding charging infrastructure involves investing in more charging facilities than what would be the case in the private market solution – which points to the need for public subsidising, see Z Yu, S Li and L Tong, ‘Market Dynamics and Indirect Network Effects in Electric Vehicle Diffusion’ 47 (2016) *Transportation Research Part D: Transport and Environment* 336.

⁴¹International Energy Agency, ‘Global EV Outlook 2021’ 60 (2021). <<https://iea.blob.core.windows.net/assets/ed5f4484-f556-4110-8c5c-4ede8bcb637/GlobaleVOutlook2021.pdf>>

⁴²Harvey (n 25) at 126. According to KX Zhou and LT White, ‘Quiet Politics and Rural Enterprise in Reform China’ 29 (4) (1995) *The Journal of Developing Areas* 461, this was an unexpected development even for the leadership of the Party, with Deng Xiaoping stating: ‘What took us by surprise completely was the development of township and village industries . . . this was not something I had thought about’.

⁴³T Ruskola, ‘People, Inc.? Law, Economic Enterprise, and the Development of Inequality in China’ 67 (2) (2019) *The American Journal of Comparative Law* 383, 393.

⁴⁴Harvey (n 25) at 129, on how TVEs paid low wages with virtually no legal protections.

regulatory measures is the NEV immunity from car ownership and traffic restrictions that otherwise apply to ICEVs. Indeed, a number of cities in China have imposed ICEV purchase restrictions to alleviate urban congestion. Two different policies have been advanced: The license plate lottery, where residents must take part in a monthly draw to get a license plate (eg. in Beijing), and the license plate auction, where residents need to bid and pay for license plates (eg. in Shanghai).⁴⁵ Crucially, the purchase of NEVs is exempted from such restrictions. In addition, certain cities also impose driving restriction policies, such as prohibiting ICEVs on certain days depending on the last digit of their plate number.⁴⁶ Such restrictions are aggravated during days of heightened air pollution. Once again, these limitations do not apply to NEV drivers. According to empirical research, these regulatory incentives have been the most influential for the consumer uptake of NEVs.⁴⁷

C. The role of foreign investment

While public investment and regulation have been the primary drivers of China's NEV market, an important piece of the planning puzzle is reliance on foreign investment. Foreign investment has been a consistent driver of growth for China's economic policy. The reform period that ended Maoist policies of self-reliance first signaled a recognition that foreign investment provided an access to global capital that was necessary for the modernisation of science and technology – what Deng called 'the primary force of production'.⁴⁸ While the first openings were tentative and concentrated in Special Economic Zones (SEZs), their early success eventually led to their acceptance and diffusion in the late 1980s and early 1990s.⁴⁹ Besides the low cost of labor, foreign investors were lured by preferential tax regimes, facilitation of licensing, and exemptions from import/export duties in SEZs.⁵⁰ Investment inflows have been particularly large in the manufacturing industry.⁵¹ At the same time, investors have been subject to restrictions regarding the ownership structure.⁵² Initially, the expectation was that foreign investors would furnish machinery and resources which, combined with low-cost Chinese labor, would generate output destined for export.⁵³ However, and despite worries that reliance on imports might create relations of dependence, export-led industrialisation never meant that there was no space for this output in the internal market.⁵⁴ Already from the outset of the reform era, and increasingly ever since, China has allowed selected joint ventures to target the domestic market – among other reasons, to enhance local competitiveness and to facilitate technology transfer.

⁴⁵X Yang et al., 'Car Ownership Policies in China: Preferences of Residents and Influence on the Choice of Electric Cars' 58 (2017) *Transport Policy* 62.

⁴⁶Ma, Fan and Feng (n 39).

⁴⁷*Ibid.*

⁴⁸H Gao and G Shaffer, 'The Role of Law in Chinese Value Chains' 19 (3) (2021) *Journal of Chinese Economic and Business Studies* 197.

⁴⁹Harvey (n 25) at 135, who also notes that heavy reliance upon foreign direct investment kept capitalist power class ownership offshore (at 123). This constituted a way to challenge the limits of planning within markets that stem from the market itself being a site of social power, see Section 6.

⁵⁰Arrighi (n 32) at 356 importantly notes that foreign investment takes place in a national economy that is accessible to outsiders only through local intermediaries.

⁵¹Y Zheng, 'Foreign Direct Investment in China' in K Zeng (ed), *Handbook on the International Political Economy of China* (Handbooks of Research on International Political Economy Series, Edward Elgar Publishing 2019) 61.

⁵²Industrial access for FDI was regulated in 1995, when the State Council published the first Catalogue of Industries for Guiding Foreign Investment and set up four categories of industries – encouraged, permitted, restricted, and prohibited, see *Ibid.*, at 69.

⁵³YY Kueh, 'Foreign Investment and Economic Change in China' 131 (1992) *The China Quarterly* 637 at 638. This FDI strategy – which the former Party Secretary-General Zhao Ziyang, referred to as '[placing] two heads outside', that is, relying on the outside world for both input supplies and market outlet – is very different from the policy of most industrialising Asian countries, which solicit manufacturing foreign direct investment for import substitution.

⁵⁴*Ibid.*, at 639.

Unsurprisingly, when it comes to NEVs, China has not departed from the strategy of attracting foreign investment. This was initially marked by the cooperation with Tesla, Inc., which was itself coupled with an ad hoc liberalisation of the foreign investment regime for automobile manufacturing. The agreement with Tesla Inc. was reached in 2018, while China introduced the ‘Special Administrative Measures for Foreign Investment Access (Negative List)’, officially enabling wholly foreign-owned enterprises to build NEV plants in China.⁵⁵ Besides gaining access to a market with enormous potential, Tesla Inc. benefits from the regime established for NEVs, including financial subsidies and preferential tax rates. For China, Tesla Inc. could constitute a catalyst that enhances local competitiveness, as domestic companies must now face an established brand name in the quest for a NEV market share.⁵⁶ At the same time, as Tesla Inc. increasing sources key components locally,⁵⁷ the spillover effect it can cause is projected to deepen the Chinese electric vehicle supply chain. Besides this economic rationale, it has been suggested that Tesla models could function as a status symbol for the urban elite, thus energising the domestic market and increasing demand.⁵⁸

Another example of how China has been attempting to utilise foreign investment to construct a NEV market is offered by the recently ‘in principle’ concluded (but not yet ratified) Comprehensive Agreement on Investment with the EU (CAI). The CAI provides for a special regime of market liberalisation with regards to NEVs. It specifies that NEVs do not fall under the general reservations assumed by China against national treatment obligations in the automotive sector.⁵⁹ While it retains certain specific limitations on market access for new NEV investors to prevent overcapacity,⁶⁰ these limitations are lifted when the total investment amount for the NEV investment project is no less than USD 1 billion.⁶¹

What transpires from China’s eagerness to grant market access to established and internationally renowned foreign-owned manufacturers is that the national priority remains the achievement of the set developmental goals through the establishment of a leading market for NEVs, even if this does not necessarily coincide with the protection of domestic companies. This is consistent with the turn to ‘market dominance’ and the guideline that promotes ‘the survival of the fittest’ companies as part of the future strategy for NEVs.

D. Transition to ‘Market Dominance’?

The role of government intervention and planning within the construction of the NEV market in China was never meant to be static. Rather, the creation of this essentially new market was conceived already from its inception as an evolutive process of guiding private investment and increasingly relying on market-based coordination. As such, it should not come as a surprise that the recent, future-oriented *New Energy Vehicle Industrial Development Plan for 2021 to 2035* (‘Plan 2021–2035’) sets ‘market dominance’ as its first basic principle. The Plan’s predecessor – the *Energy-Saving and New Energy Vehicle Industry Plan for 2012 to 2020* (‘Plan

⁵⁵The Negative List retained the joint venture requirement for regular automobile manufacturing. China had granted limited market access to its automotive sector already since its entry to the WTO in 2001, although at the time requiring foreign investors to receive prior authorisation and limiting them to joint-venture arrangement with local partners. In 2019, China enacted a new version of its Foreign Investment Law, which makes significant leaps of liberalisation of market access, among which the establishment of a regime of pre-establishment national treatment for foreign investors and, as far as ICEV automobile manufacturing (not NEVs) is concerned, the commitment to lift joint venture requirements by 2022.

⁵⁶J Kyngé, ‘Why China Welcomes the Pain Tesla Brings’ (2020) <<https://asia.nikkei.com/Spotlight/Comment/Why-China-welcomes-the-pain-Tesla-brings>>.

⁵⁷S Alvarez, ‘Over 90% of Tesla China’s Model 3 and Model Y Parts Now Sourced Locally: Report’ (2021) <<https://www.teslarati.com/tesla-achieves-90-percent-localized-supply-china/>>.

⁵⁸Kyngé (n 56).

⁵⁹CAI, Annex I Entry 6 (3).

⁶⁰CAI, Annex III, 12W (2).

⁶¹CAI, Annex X, Paragraph 2.

2012–2020’) – outlined a commitment to a combination of ‘government guidance and market driving’, while highlighting the crucial role of planning for the development of NEV industry and the need for regulatory incentives to create consumer demand. Yet, it also laid out that once the industry entered its mature stage, it must be the market that occupies the driver’s seat in allocating resources and promoting the large-scale commercial application and diffusion of NEVs. As the NEV industry indeed expanded at a fast pace during the first Plan’s duration, the current Plan of 2021–2035 accords a more pronounced role to the market mechanism, while still operating within the ideological framework of ‘Socialism with Chinese Characteristics’.

The goal of the current Plan is now to unequivocally prioritise market coordination and strengthen the dominant position of enterprises in production. The redrawn role of the state for the future is imagined along almost ordoliberal lines. Its tasks are primarily limited to creating a unified regulatory environment along the lines of ‘delegating power, regulating services’,⁶² securing market competition and promoting ‘the survival of the fittest’⁶³ enterprises, and supporting the industry through infrastructure development, building capacity for technological innovation, and preferential tax policies. A central aspect of the plan that contrasts with its predecessor’s emphasis on government-induced demand is the phasing out and ending of subsidies.⁶⁴ Instead, the current plan shifts to taxation exemption, while maintaining subsidies for charging infrastructure. This showcases the shift of focus away from directly instigating consumer demand and on advancing the general infrastructural and regulatory conditions for the NEV industry to flourish.

Part of the Plan is to enhance the NEV mandate policy, which was introduced in 2018. This policy assigns to NEVs a specific number of credits depending on metrics (eg, electric range, energy efficiency, power of fuel cell systems) and sets annual mandatory requirements of NEV credits for auto manufacturers.⁶⁵ At the same time, and in line with the transition to a more predominant role for the market mechanism, it allows auto manufacturers to sell NEV credits to other companies or to use them to offset corporate average fuel consumption credit deficits – thus integrating NEV mandate policy with the carbon trading mechanism. Following the phasing-out of subsidies, credit revenues are projected to be the main financial benefits for NEV producers.⁶⁶ Failure to meet NEV credit requirements (or fuel consumption credits) will result in denial of model approval and constrained market access. This ‘dual-credit policy’ is partially modeled after California’s Zero Emission Vehicle (ZEV) program. Choosing this program to model the dual-credit policy after is no accident. As will be discussed in the next section, the ZEV program constitutes one of the most ambitious USA policies of central coordination for the achievement of set objectives, in a market where otherwise coordination is entrusted to price signals and consumer preferences. Similarly, China’s ‘transition to market dominance’ with regards to NEVs is not imagined as the abandonment of planning altogether but rather as a change in the register of planning. Considering the level of maturity of the NEV industry, it is henceforth not necessary to plan a market but only to plan *within* the market.

⁶²State Council of PRC, ‘New Energy Vehicle Industry Development Plan (2021–2035)’ (2020) at 13.

⁶³*Ibid.*

⁶⁴Already from the outset, government subsidies were meant to be phased-out and eventually discontinued in 2020, see Li, Yang and Sandu (n 34) at 1517. However, due to the COVID-19 pandemic, the end of the subsidy program was postponed to 2022, see Ministry of Finance of PRC, ‘Notice on Improving the Financial Subsidy Policy for the Promotion and Application of New Energy Vehicles’ (2020) <http://jjs.mof.gov.cn/zhengcefagui/202004/t20200423_3502975.htm>.

⁶⁵ICCT, ‘China’s New Energy Vehicle Mandate Policy (Final Rule)’ (2018) <https://theicct.org/sites/default/files/publications/China-NEV-mandate_ICCT-policy-update_20032018_vF-updated.pdf>.

⁶⁶Z Chen and H He, ‘How Will the Dual-Credit Policy Help China Boost New Energy Vehicle Growth?’ (2022) <https://ccci.berkeley.edu/sites/default/files/China_Dual_Credit_Policy_Brief_Feb2022.pdf> at 4.

3. Planning within markets: new energy vehicles as part of the energy transition in the USA and the EU

A. Relying on existing markets?

The USA has the second largest NEV market after China. Yet, contrary to China's approach of heavy subsidising, regulatory controls, and committed support to research, development, and infrastructure, the USA had until recently refrained from setting the expansion of the NEV market as an economic and social objective. While a limited range of policies have attempted to provide market incentives that would support growth of the industry, the sector has not benefited from the type of coordinated planning as has been the case in PRC. Federal subsidies have been relatively weak, with only 30 per cent of electric cars sold in the USA in 2020 benefiting from federal tax credits.⁶⁷ Furthermore, the recent efficiency and carbon dioxide emissions standards that regulate the USA market – the Safer Affordable Fuel-Efficient (SAFE) Vehicle Rules – while in principle still favouring the uptake of NEVs, in fact, set weaker energy efficiency targets than the previous Corporate Average Fuel Economy (CAFE) standards.⁶⁸

At a state level, NEV-supporting policies have been more ambitious.⁶⁹ Numerous states have adopted a range of purchase subsidies, supplemented by more minor consumer incentives related to vehicle operation (exemptions from or reductions in state license and registration fees and emissions inspections), parking incentives, or access to high-occupancy vehicle lanes. What stands out as an example of planning, in principle comparable to the Chinese policies, is the ZEV regulation of California, subsequently adopted by a number of USA states and used as a model for China's NEV mandate policy.⁷⁰ The ZEV regulation requires auto manufacturers to produce a certain number of NEVs as a quota of their overall production.⁷¹ This is also a credit system on the basis of electric driving range, where credits above compliance can be traded in secondary markets. The ZEV program was recently followed by Executive Order N-79-20, according to which all sales of passenger vehicles must be NEVs by 2035, with the goal of reaching carbon neutrality by 2045.⁷²

A similar regulatory model for the promotion of NEVs has been followed until now in Europe. At an EU level, broader commercialisation of NEVs has been supported through mandatory CO₂ emission standards for passenger cars, first introduced in 2009 and expanded in 2014 with

⁶⁷See, International Energy Agency, 'Global EV Outlook 2021' (n 41) at 56. In 2008 the federal government introduced a federal income tax credit of up to \$7,500 per vehicle and up to \$1,000 per home charger unit. However, the tax credit is only available until a manufacturer sells 200,000 NEVs, a limit already reached by General Motors and Tesla Inc. See, also C Boudreau, 'Biden Wants Union Jobs and Clean Air: Delivering Both Might Be Tough' (2021) <<https://www.politico.com/news/2021/09/21/biden-union-jobs-clean-air-513387>>.

⁶⁸International Energy Agency, 'Global EV Outlook 2021: Accelerating Ambitions Despite the Pandemic' (2021) at 55. The SAFE standards were a roll-back of the Trump administration on grounds of safety, see U.S. Department of Transportation, 'U.S. DOT and EPA Propose Fuel Economy Standards for MY 2021–2026 Vehicles' (2018) <<https://www.transportation.gov/briefing-room/dot4818>>. The Biden administration has committed to new standards, National Highway Traffic Safety Administration, 'USDOT Proposes Improved Fuel Economy Standards for MY 2024–2026 Passenger Cars and Light Trucks' (2021) <<https://www.nhtsa.gov/press-releases/fuel-economy-standards-2024-2026-proposal>>.

⁶⁹For an overview, see P Slowik and N Lutsey, 'Expanding the Electric Vehicle Market in U.S. Cities' (2017) <https://theicct.org/sites/default/files/publications/US-Cities-EVs_ICCT-White-Paper_25072017_vF.pdf> and S Hayashida, SL Croix and M Coffman, 'Understanding Changes in Electric Vehicle Policies in the U.S. States, 2010–2018' 103 (2021) *Transport Policy* 211.

⁷⁰The ZEV mandate emerged as 'technology forcing' out of the larger policy debate over air quality. For a history of the program, see G Collantes and D Sperling, 'The Origin of California's Zero Emission Vehicle Mandate' 42 (10) (2008) *Transportation Research Part A: Policy and Practice* 1302.

⁷¹'Zero-Emission Vehicle Program' <<https://ww2.arb.ca.gov/our-work/programs/zero-emission-vehicle-program/about>>.

⁷²The primary mechanism for achieving the ZEV target for passenger cars and light trucks is the Advanced Clean Cars II (ACC II) Program, the development of which is currently in progress.

Regulation No 136/2014.⁷³ The manufacturing of NEVs is incentivised, with low emission vehicles counting as a form of ‘super credits’ in meeting the targeted fleet average set for the manufacturer.⁷⁴ At a national level, certain European states have also significantly supported the establishment of NEV markets. Some of the most ambitious incentivising policies have been adopted in Norway – in many ways an outlier case of tailoring NEV policy to the achievement of desirable targets, making it the country with the largest NEV fleet per capita. As part of numerous monetary incentives, Norway has exempted NEVs from its otherwise high purchase taxes, while also setting the goal of all passenger vehicle sales to be NEVs by 2025.⁷⁵ Although with less intensity, NEVs have been promoted through different policies in other European countries.⁷⁶

What transpires from these instances is an intention of public authorities to curb CO₂ emissions and support the establishment of a NEV market. However, with the exception of Norway, the promotion of the NEV industry did not extend far beyond emission standards regulation. Contrary to China that explicitly sought to establish a NEV market by means of strong subsidising and heavy-handed regulatory policies, in the USA and the EU the promotion of the NEV market was conceived as an *adjunct* to emission standards regulation. Presumably, and besides the influence of lobbying and corporate interests,⁷⁷ this indicates a reluctance to engage in demand-side economics that would distort prices, relying instead on technology progress as the safest avenue for eventual NEV diffusion. The leading position in the global NEV market assumed by China, as well as the rising awareness of climate change and the need to orchestrate sustainability transitions at a pace that exceeds change in consumer preferences, has led both the USA and the EU to partially revise their strategies, enhancing elements of planning and central coordination.

B. Elements of market planning in the EU Green Deal and the USA infrastructure and inflation reduction acts

In both the USA and the EU, addressing the socio-economic effects of the COVID-19 pandemic, combined with increased awareness of climate change, has meant a partial turn to the state and more ambitious forms of central economic coordination. Increasing the uptake of NEVs by means of deliberate policies has been, even if in different degrees, part of that turn.

In the USA, the Biden Administration released an EV Charging Action Plan as part of the Infrastructure Investment and Jobs Act.⁷⁸ The plan involves an investment of \$5 billion up to \$7.5 billion funding for states with the goal to build a nationwide charging network. This is considered a critical move for the achievement of the overarching objective of 50 per cent NEV sales out of all car sales by 2030. The more recent Inflation Reduction Act includes a tax credit for NEVs but only under conditions related to the automobile’s assembly location and battery sourcing.⁷⁹

⁷³The Regulation set standards at 95 g/km of CO₂, which are phased in for 95 per cent of vehicles in 2020 and 100 per cent compliance in 2021. Possible penalties for manufacturers include suspension of type-approval and fines. However, A Tsakalidis and C Thiel, ‘Electric Vehicles in Europe from 2010 to 2017: Is Full-Scale Commercialisation Beginning?’ (2018) *EUR* 29401 EN attribute the success primarily to technology progress.

⁷⁴According to ICCT, ‘EU CO₂ Emission Standards for Passenger Cars and Light-Commercial Vehicles’ (2014) <https://theicct.org/sites/default/files/publications/ICCTupdate_EU-95gram_jan2014.pdf> the regulation has been partially successful.

⁷⁵See, ‘Norwegian EV Policy’ (2014) <<https://elbil.no/english/norwegian-ev-policy/>>.

⁷⁶For an overview, see International Energy Agency (n 68). Ambitious policies have also been followed in the Netherlands, which currently plans to implement zero-emission zones in 2025 for up to 40 of its largest cities.

⁷⁷See, G Bade, ‘The Oil Industry vs. the Electric Car’ (2019) <<https://www.politico.com/story/2019/09/16/oil-industry-electric-car-1729429>>.

⁷⁸The White House, *The Biden-Harris Electric Vehicle Charging Action Plan* (2021).

⁷⁹Eligible cars must be assembled in North America. Of the tax credit, 50 per cent is dependent on the condition that at least 40 per cent of the vehicle’s battery critical minerals were extracted and processed in the USA or countries with a free trade agreement with the USA or were recycled in North America. The other 50 per cent is dependent on the condition that at least

Not unlike China, the USA introduces conditionalities that are meant to strengthen and support domestic industry and national strategic autonomy.

Although the Infrastructure Law and the EV Charging Action Plan do not outline further measures to support the industry, such as subsidies and public investment, they signal the intention to develop a new, centrally coordinated strategy with regards to battery manufacturing. Outlined in the 100-day reviews of the White House on ‘Building Resilient Supply Chains, Revitalizing American Manufacturing, and Fostering Broad-Based Growth’, a key component of the NEV strategy is to ‘reshore’ production and manufacturing of NEV batteries and components. The report repeatedly refers to China and, to a lesser extent, to the EU as examples of government-led industrial policies, signalling the risk that the USA is left behind in international competition if it does not take ‘swift and coordinated action’.⁸⁰ For example, as the USA lacks domestic processing capacity, raw materials have to be shipped abroad for processing – a segment of the value chain where China consistently invested and now has a globally leading role. Referring to its ‘massive subsidies’ for raw material processing and cell production, as well as to the direct subsidies of the NEV industry, the Report underlines that ‘China in particular has created a distorted supply chain landscape through non-market or government intervention from state-controlled firms, both domestically and in developing economies’.⁸¹ Among its recommendations, the Report stresses supporting demand for EV batteries (eg, by supporting the building of a charging network or by electrifying federal vehicles), enacting new Federal grant programs to catalyse private capital to invest in processing capacity of raw materials, and turning to domestic extraction of critical minerals, while also using content requirements under trade agreements, like the United States–Mexico–Canada Agreement, that offer incentives to localise battery production. Acting upon the aspirations enclosed in this report, the government released funding for battery materials refining and production plants as part of the Infrastructure Law, passed the conditionalities related to the NEV tax credit in the Inflation Reduction Act, while it is poised to invoke the Defense Production Act to increase the availability of critical minerals.⁸²

The EV Charging Action Plan, the conditional tax credit of the Inflation Reduction Act, and the recommendations of the Report regarding battery manufacturing mark a shift from earlier federal policies that largely relied on decentralised market outcomes for the development of the NEV industry. There is a distinct aspiration for centralising economic coordination and outlining a forward-looking, government-led industrial policy, drawing inspiration from China and the EU. Yet, considering the reliance on private funding and the relative absence of substantial public investment it is questionable whether the strategy of reshoring battery production could eventually lead to its aspired outcomes.

The European Green Deal seeks to transform the EU into a resource-efficient economy, with a goal of carbon neutrality by 2050.⁸³ Encompassing a set of proposals on climate, energy, transport, and taxation, the Green Deal is currently the most ambitious EU policy package. Its financing will

half of the vehicle’s battery components are manufactured or assembled in North America – a conditionality that bear similarity with that of China’s policies, see above n 33. Both requirements increase over time. See, The White House, ‘Building a Clean Energy Economy: A Guidebook to the Inflation Reduction’s Act Investments in Clean Energy and Climate Action’ 45 (2022) <<https://www.whitehouse.gov/wp-content/uploads/2022/12/Inflation-Reduction-Act-Guidebook.pdf>>. See, also ‘Understanding the Inflation Reduction Act’s Electric Vehicle Tax Credits’, <<https://betterenergy.org/blog/understanding-the-inflation-reduction-acts-electric-vehicle-tax-credits/>>.

⁸⁰The White House (n 13) at 86.

⁸¹*Ibid.*, at 92.

⁸²A Williams, ‘Joe Biden to Use Korean War-Era Powers to Boost Supply of Electric Vehicle Battery Minerals’ *Financial Times* (30 March 2022) <<https://www.ft.com/content/e71e6a9f-44f1-41f6-8203-652ee85b1a4f>> In addition, in 2021 the USA passed the CHIPS for America Act, designed to provide government subsidies to encourage chip production and support semiconductor research and development – yet, the funding for the Act stills needs to be approved.

⁸³Regulation (EU) 2021/1119 ‘European Climate Law’. On the European Green Deal more broadly, see European Commission, ‘The European Green Deal’ (2019) COM(2019) 640.

rely on both public and private funding, including the EU's seven-year budget, the stimulus package of the Next Generation EU Recovery Plan, and the mobilisation of private capital.⁸⁴ NEVs constitute an important piece of the puzzle for the planned energy transition. As part of a series of legislative proposals adopted in July 2021 to deliver on the goals of the Green Deal, the Commission has outlined its plans to cut vehicle CO₂ emissions by 55 per cent by 2030, eliminating them completely by 2035.⁸⁵ To support this thorough transition to NEVs in under 15 years, the Commission has proposed a Regulation that would require Member States to install public charging points no more than 60 kilometres apart on major roads by 2025.⁸⁶ As the Proposal contemplates the EU's non-exclusive competence and, in a way, the limits of centralisation, it concludes that 'without Union intervention, it would be very unlikely that a coherent and complete network of fully interoperable alternative fuels infrastructure would develop across all Member States'.⁸⁷ Sustainability transition programs, including the installation of charging infrastructure, will be partly financed by the European Green Deal Investment Plan.⁸⁸ However, this does not change the overall strategy for growth, which relies primarily on mobilising private investment and integrating capital markets for the transition to a 'green, digital and resilient economy'.⁸⁹

In addition, in the effort to stimulate innovation in zero-emission technologies, the EU has also targeted the battery sector as a strategic part of Europe's clean energy transition and crucial for global competitiveness. In 2017, the Commission launched the European Battery Alliance as a public-private initiative, and in 2018 a Strategic Action Plan that aims to secure access to raw materials, support European battery cells manufacturing at scale, and support research and

⁸⁴The Next Generation EU package is financed largely by common issuance of debt bonds, see European Commission, 'The EU budget powering the recovery plan for Europe' (2020). The Next Generation EU package imposes a form of conditionality for access to funds, as for Member States to receive funding under the disbursement scheme of the package, they must submit national Recovery and Resilience plans with a significant climate-related fiscal component, see B de Witte, 'The European Union's Covid-19 Recovery Plan: The Legal Engineering Of An Economic Policy Shift' 58 (3) (2021) *Common Market Law Review* 635 at 676.

Mobilising private funds is linked to the Action Plan on the Capital Markets Union and Banking Union, which would integrate capital markets, see European Commission, 'Towards a Green, Digital and Resilient Economy: our European Growth Model' (COM(2022) 83, 2022); European Commission, 'A New Industrial Strategy for Europe' (2020) COM(2020) 102. It is also supported by the InvestEU programme that backs investment projects with an EU budget guarantee, see Regulation (EU) 2021/523 of the European Parliament and of the Council of 24 March 2021 establishing the InvestEU Programme and amending Regulation (EU) 2015/1017. On how supporting the climate-related economic policies of the EU possibly expands the mandate of the European Central Bank by virtue of the redistributive effects of monetary policy, see A Steinbach, 'The Greening of the Economic and Monetary Union' 59 (2) (2022) *Common Market Law Review* 329.

⁸⁵This is part of the broader goal to cut emissions 55 per cent from 1990 levels by 2030 on the way to carbon neutrality and part of the 'Fit for 55' package. See, European Commission, 'Proposal for a Regulation of the EU parliament and Council amending Regulation (EU) 2019/631 as regards strengthening the CO₂ emission performance standards for new passenger cars and new light commercial vehicles in line with the Union's increased climate ambition' (2021) 9. The proposal discontinues the credit scheme, as 'this would blur the responsibilities of different players to reach the targets, undermine the effectiveness and efficiency of the legislation and increase the administrative burden and complexity'. The European car industry association ACEA has protested by arguing that banning a specific technology is not a rational way forward, N Carey and C Steitz, 'EU Proposes Effective Ban for New Fossil-Fuel Cars from 2035' (2021) <<https://www.reuters.com/business/retail-consumer/eu-proposes-effective-ban-new-fossil-fuel-car-sales-2035-2021-07-14/>>. In Germany, environmental organisation Deutsche Umwelthilfe filed an action against Mercedes-Benz for not yet having committed to phase out the sale of ICEVs by 2030, see *Deutsche Umwelthilfe (DUH) v Mercedes-Benz AG* (2021).

⁸⁶European Commission, 'Proposal for a Regulation of the EU Parliament and of the Council on the Deployment of Alternative Fuels Infrastructure, and Repealing Directive 2014/94/EU of the European Parliament and of the Council' (2021) COM(2021) 559 at 32.

⁸⁷*Ibid.*, at 7.

⁸⁸European Commission, 'The EU Budget Powering the Recovery Plan for Europe' (n 84).

⁸⁹European Commission, 'Towards a Green, Digital and Resilient Economy: Our European Growth Model' (n 84).

innovation for new technologies in the batteries sector.⁹⁰ While once again primarily relying on private investment, the Commission also commits to make public funding or financing for battery cells manufacturing and research and innovation projects available through various financing instruments.⁹¹

C. Recapping the comparative analysis

As highlighted above, even in the context of outlining an industrial policy, the USA most clearly relies on and supports private market outcomes. The EU grants a more important role to coordination, increasingly adopting policies that seek to shape a market that delivers state-desired outcomes. This observation is in line with the literature on varieties of capitalism.⁹²

However, this *prima facie* conclusion needs to be further qualified. Overall, both the USA and the EU have, in different degrees, shown signs of aspirations for centralising economic coordination and advancing agendas of unilateral, government-led industrial strategies for sustainability transitions, including the transition to NEVs. Unlike China these aspirations have not been substantially coupled with proportionate public funding and investment in research, development, and infrastructure, or with pervasive disciplining mechanisms. Yet, not unlike China, the advanced or proposed industrial strategies in the USA and the EU reflect the implicit recognition that the legal infrastructure of markets can be used to constraint and guide market activity in a politically determined way to achieve social objectives. As I will also show in the next section, the differences between these modes of planning are differences of degree. For comparativists, seeing law as indeed a form of social engineering is hardly a novelty.⁹³ This engineering dimension of law is increasingly apparent and relied upon, as congruence leads to converge of the regulatory and policy frameworks in transportation sustainability transitions.⁹⁴ While the present case study cannot support a broad conclusion of a growing appeal of coordinated economies, the – at least in principle – turn to industrial policies should be seen within a broader context of linking trade and security, shifting to unilateralism, and seeking to reshore production and enhance supply chain resilience.⁹⁵

For example, the EU mandate to eliminate the internal combustion engine by 2035, while coordinating relevant infrastructure development and industry financing, showcases the state-led undertone of the current industrial strategy. A similar instance of planning within markets is the development of the EU Taxonomy, as part of the Green Deal. Recognising that orchestrating sustainability transitions requires defining the content of ‘sustainability’, the European Green Deal involves the establishment of a classification system – a Taxonomy – about the activities that count as environmentally sustainable. As the Taxonomy primarily establishes criteria for investment, it illustrates the dependence on the financial sector for sustainability projects and does not detach from the paradigm of finance-led decarbonisation. Yet, at the same time, and regardless of the eventual content of the Taxonomy,⁹⁶ the development of a list is, in itself, a move of injecting

⁹⁰European Commission, ‘EUROPE ON THE MOVE: Sustainable Mobility for Europe: Safe, Connected and Clean’ (n 13).

⁹¹*Ibid.*, at 4–6.

⁹²See, PA Hall and DW Soskice (eds), *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage* (Oxford University Press 2001). On the extent to which the political economy of legal systems could give credence to the notion that the civil law tradition that characterises the EU reflects a more regulatory conception of the state than that of the common law/liberal economy nexus, see indicatively, J Reitz, ‘Legal Origins, Comparative Law, and Political Economy’ 57 (4) (2009) *The American Journal of Comparative Law* 847 and R Michaels, ‘Comparative Law by Numbers? Legal Origins Thesis, *Doing Business Reports*, and the Silence of Traditional Comparative Law’ 57 (4) (2009) *The American Journal of Comparative Law* 765.

⁹³K Zweigert and H Kötz, *An Introduction to Comparative Law* (2nd edn, Clarendon Press 1996) at 45.

⁹⁴On convergence through congruence, see M Siems, *Comparative Law* (2nd edn, Cambridge University Press 2018) at 265.

⁹⁵See, A Roberts, HC Moraes and V Ferguson, ‘Toward a Geoeconomic Order in International Trade and Investment’ 22 (4) (2019) *Journal of International Economic Law* 655; HG Cohen, ‘Nations and Markets’ 23 (4) (2020) *Journal of International Economic Law* 793.

⁹⁶On some of the debates around the inclusion of gas and nuclear energy see, M Khan, ‘EU Faces Down Critics Over Green Investment Label for Gas and Nuclear Power’ (*Financial Times*, 2 February 2022) <<https://www.ft.com/content/0acb5e0f-8322-413f-911d-fda09951ea99>>.

public standards and political determinations in market processes. The definition of sustainability is henceforth not dependent on contingent market determinations but rather becomes politicised and decided by public authority.⁹⁷ The politicisation of the market in these examples indicates that there is potential in planning within markets beyond what is currently manifesting in regulatory policies of the USA and the EU. This does not contradict the critique that the Green Deal eventually relies on price signals to ensure sustainability transitions and, as such, does not go beyond neoclassical economic rationalities.⁹⁸ Yet, as the case of China also demonstrates – despite its unique political and historical background – markets otherwise structured along neoclassical economic rationalities can still be used to do more. The reason is that behind price signals lies an expansive regulatory infrastructure that can steer the functional and coercive power of market processes and exert centralised control over the economy to direct it towards sustainability or developmental goals. I turn to the question of the role of law in planning within markets in the next section.

4. The role of law in planning within markets

A. Planning is ubiquitous

One possible lens through which to approach the policies adopted in the EU and, less so, in the USA is that of state ‘intervention’ in the economy. Indeed, even commentators who are sceptical of the Green Deal⁹⁹ or who lament the emphasis on ‘regulatory enforcement’ and ‘centralisation supported by conformity’¹⁰⁰ implicitly recognise that relying on market coordination and green investing will not be sufficient to deliver the magnitude of socio-economic shifts required to address climate change. It is, indeed, tempting to read the developments in the EU and the USA through the lenses of a type of functionalism that would see the legal system adapting to external social processes as it was bound to do.¹⁰¹ However, ‘intervention’ is a misnomer. While the pronouncement that ‘planning is back’ captures an essential element of the current developments, it also obscures how planning and central economic coordination are inevitably taking place in the background of economic activity.¹⁰² What changes is the content, the intensity, and the normative direction of planning.

The lens of state ‘intervention’ frames the law as exogenous to the economy. As such, and contrary to current law and political economy perspectives,¹⁰³ the ‘intervention’ discourse implicitly exonerates law for the status quo, which is instead presented as a naturalised outcome of societal interactions. From the ‘exogeneity’ perspective, legal rules, such as carbon emission mandates that force manufacturers into the production of NEVs, would be portrayed as external interventions in an otherwise self-executing market and ‘free’ societal sphere of economic activity. In other words, whereas prior to the adoption of such legislation car manufacturers were free to produce any type of cars subject only to the laws of demand and supply, regulatory controls and carbon emission mandates interject a form of top-down coercion that limits the otherwise free association of

⁹⁷Along these lines, the Taxonomy has been criticised for its ‘bureaucratic outlook’ with a static classification that will not adapt to technological progress, see L D’Urbino, ‘The EU’s Green Rules Will Do Too Little to Tackle Climate Change’ (*The Economist*, 8 January 2022) <<https://www.economist.com/leaders/2022/01/08/the-eus-green-rules-will-do-too-little-to-tackle-climate-change>>.

⁹⁸See, A Smolenska, ‘The Redistributive Outcomes in the EU’s Sustainable Finance Regulation’ Working Paper.

⁹⁹D’Urbino (n 97).

¹⁰⁰N Butler, ‘The Disruptive Effects of Europe’s Green Deal’ (*Financial Times*, 27 January 2020) <<https://www.ft.com/content/e5c341d2-3c38-11ea-b232-000f4477fbca>>.

¹⁰¹See, RW Gordon, ‘Critical Legal Histories’ 36 (1984) *Stanford Law Review* 57 at 68, who suggests that the persistence of this idea can be traced to its serviceability to the liberal notion that law is a neutral arbiter of social conflict. It reduces the margin of opportunity for legal influence on the direction of social change to policymakers, excluding mass movements and local struggles.

¹⁰²According to K Polanyi, *The Great Transformation: The Political and Economic Origins of Our Time* (Beacon Press 2001) at 147, ‘laissez-faire was planned; planning was not’.

¹⁰³See, n 3.

private individuals. However, as legal realists have shown, the previous condition of ‘free’ market activity was itself a product of legal entitlements.¹⁰⁴ The right to produce any type of car despite, for example, the detrimental effects of carbon emissions, is itself an entitlement defined and guaranteed by law. The previous market condition was as much a result of regulation and political will as the one following the introduction of production-related mandates. It was a condition that bestowed upon car manufacturers the right to produce any type of car and, thus, the power to ‘coerce’ third-parties in accepting the environmentally detrimental effects of such activity.¹⁰⁵ This is based on the Hohfeldian insight of the *legal* character of even implicit rules of permission – a recognition that denaturalises and exposes the politically contingent underpinnings of markets.¹⁰⁶ Considering, therefore, that either version of the car market is a legal (and thus political) construct, new limitations of manufacturers’ capabilities should not be understood as an ‘intervention’ but rather as a restructuring of the rights and capabilities of the different parties – this time in favour of third-parties that do not form part of the contractual transaction.

The ubiquity of planning does not transpire solely through the – inevitably political – allocation of legal entitlements, which is performed by background rules of prohibition and permission. Rather, exposing the legal dimension of the market also destabilises the notion of ‘market-determined’ prices as *the* instruments of rational allocation of goods in a market economy. As Hockett and Kreitner show, the price system is an ‘immense engineering project’, generated by ‘institutional design, legislative action, and judicial decision’.¹⁰⁷ Not only do public employment and procurement benchmark prices for certain goods but it is also legal decisions that give value to ‘fictitious commodities’¹⁰⁸ – including, for example, real estate or intellectual property.¹⁰⁹ While the engineered character of prices becomes conspicuous in the case of subsidies, such as in the case of the NEV industry in China, it reaches its apogee in cases of direct price controls – which, as recent scholarship does not fail to underline, have been a persistent feature not only of China’s path to reform but, in many instances, also of liberal capitalism.¹¹⁰

Going from the macro to the micro, Andrew Lang argues that, even under the neoclassical paradigm of prices as the measure of subjective value reflecting preferences and individual utility, price formation does not happen in a vacuum. Instead, it necessarily entails certain legal priors.¹¹¹ Any act of valuation of a particular good or service depends on a nexus of institutional conditions:

¹⁰⁴RL Hale, ‘Coercion and Distribution in a Supposedly Non-Coercive State’ 38 (3) (1923) *Political Science Quarterly* 470; D Kennedy, ‘The Stakes of Law, or Hale and Foucault!’ XV (4) (1991) *Legal Studies Forum* 327. For an overarching perspective on how legal realism sought to the notion of ‘free markets’, see MJ Horwitz, *The Transformation of American Law, 1870–1960: The Crisis of Legal Orthodoxy* (Oxford University Press 1992) at 193.

¹⁰⁵On how, for Robert L. Hale, the distinction between ‘freedom’ and ‘coercion’ has no functional content, see BH Fried, *Progressive Assault on Laissez Faire: Robert Hale and the First Law and Economics Movement* (Harvard University Press 2009) at 29. See, also Polanyi (n 102) on ‘freedom in a complex society’ at 257. For an even more straightforward example of how existing markets are products of planning with winners and losers, see D Carrington, ‘Fossil Fuel Industry Gets Subsidies of \$11m a Minute, IMF Finds’ (*The Guardian*, 6 October 2021) <<https://www.theguardian.com/environment/2021/oct/06/fossil-fuel-industry-subsidies-of-11m-dollars-a-minute-imf-finds#:~:text=Fossil%20fuel%20industry%20gets%20subsidies,finds%20%7C%20Fossil%20fuels%20%7C%20The%20Guardian>>.

¹⁰⁶WN Hohfeld, ‘Fundamental Legal Conceptions as Applied in Judicial Reasoning’ 26 (8) (1917) *The Yale Law Journal* 710.

¹⁰⁷RC Hockett and R Kreitner, ‘Just Prices’ 27 (3) (2018) *Cornell Journal of Law and Public Policy* 771 at 772 and 783.

¹⁰⁸Polanyi (n 102).

¹⁰⁹In addition, both interest rates and banking regulation, which determines the costs of credit in different sectors of the economy, contribute to the engineering of prices, see Hockett and Kreitner (n 107) at 783.

¹¹⁰While in the USA and Europe price controls peaked in theory and practice in the context of war, they remained a feature of liberal capitalism, see ‘Price and Sovereignty’ (2021) 135 *Harvard Law Review* 755. On using strategic price controls as a tool and policy response to macroeconomic challenges, see I Weber, ‘Could Strategic Price Controls Help Fight Inflation?’ (*The Guardian*, 29 December 2021) <<https://www.theguardian.com/business/commentisfree/2021/dec/29/inflation-price-controls-time-we-use-it>>.

¹¹¹A Lang, ‘Market Anti-Naturalisms’ in J Desautels-Stein and C Tomlins (eds), *Searching for Contemporary Legal Thought* (Cambridge University Press 2017) 312.

one's disposable income or set of opportunities and alternative options are crucial for the formulation of subjective preferences in the first place – and, at the same time, they remain a function of legal arrangements. This inevitably means that legal changes that rearrange social relations in production and exchange eventually register within prices.

Planning is not a privilege of public authorities; private actors also engage in planning. Warning against a simplified understanding of the economic system as coordinated by the price mechanism that 'works itself', Ronald Coase identified corporations as 'islands of conscious power'.¹¹² Within firms, the coordinating role of the price mechanism is substituted by an internal hierarchy, with the entrepreneur directing production as they see fit. In fact, Coase underlines, the main reason for establishing a firm is that relying on the price mechanism entails costs related to discovering the relevant prices.¹¹³ Building on this thesis, Katharina Pistor suggests that the transformation of digital technologies and the expansion of informational capacities could mean that hierarchical orderings are the most efficient organisational form, even when transactions costs associated with price discovery are low. The reason for this is that hierarchical orderings enable the centralised control of data and information associated with consumer preferences.¹¹⁴ Indeed, data-driven processes are also increasingly employed in global value chains coordinated by lead firms.¹¹⁵ As platforms in control of vast arrays of supply chains successfully employ predictive analytics and forecasting technologies both to control supply but also to shape demand, they may progressively replace markets with algorithmic authority.¹¹⁶ Such instances of private planning supported by big data have fuelled critiques of market capitalism and inspired reimaginings of centralised planning.¹¹⁷ I will return to this point in the next section.

B. Planning as a spectrum

While markets are permeated by planning in the broader sense of the inevitable central coordination performed by the legal and institutional infrastructure, planning within markets unfolds in a spectrum. At the one end of the spectrum coordination of production and investment could be entrusted to business and atomised decision-making, where public authority restricts itself to guaranteeing property rights, competition rules, and price stability. This 'ordoliberal' form of planning consciously seeks to depoliticise markets by insulating fundamental market structures from democratic contestation and by reducing legal relationships to their formal components.¹¹⁸ As such, it concentrates political coercion (eg, for protecting property rights, competition, or

¹¹²RH Coase, 'The Nature of the Firm' 4 (16) (1937) *Economica* 386 at 388. The entire quote is 'islands of conscious power in this ocean of unconscious co-operation like lumps of butter coagulating in a pail of buttermilk', citing DH Robertson, *The Control of Industry* (Nisbet & Cambridge 1949) at 85.

¹¹³Coase (n 112) at 390.

¹¹⁴K Pistor, 'Rule By Data: The End of Markets?' 83 (2020) *Law and Contemporary Problems* 101 Similarly, P Palka, 'Algorithmic Central Planning: Between Efficiency and Freedom' 83 (2020) *Law and Contemporary Problems* 125, suggests that big data and algorithmic processing could construct a planned economy through the empowering of private central planners. Building on the same developments but with an opposing normative agenda, E Morozov, 'Digital Socialism? The Calculation Debate in the Age of Big Data' 116/117 (2019) *New Left Review* 33 suggests that the development of digital 'feedback infrastructure' offers opportunities to displace market competition and the price system as the centerpieces of socio-economic coordination.

¹¹⁵According to consulting agency McKinsey, 'planning is already the most data-driven process in the supply chain . . . there is now significant potential to truly redefine the planning process, however, using new internal and external data sources to make real-time demand and supply shaping a reality'. K Alicke et al., 'Big Data and the Supply Chain: The Big-Supply-Chain Analytics Landscape' (2016) <<https://www.mckinsey.com/business-functions/operations/our-insights/big-data-and-the-supply-chain-the-big-supply-chain-analytics-landscape-part-1>>.

¹¹⁶I Lianos, 'Digital Era Competition: A BRICS View' (2019).

¹¹⁷F Jameson, *Valences of the Dialectic* (Verso 2010) at 420; L Phillips and M Rozworski, *People's Republic of Walmart: How the World's Biggest Corporations Are Laying the Foundation for Socialism* (Verso 2019).

¹¹⁸On these core commitments of economic liberalism as a form of ordoliberalism, see C Joerges, 'What Is Left of the Economic Constitution?' 3 (3) (2006) *Revue Internationale de Droit Économique* 245; DJ Gerber, 'Constitutionalizing the Economy: German Neo-Liberalism, Competition Law and the "New" Europe' 42 (1) (1994) *The American Journal of Comparative Law* 25; Kampourakis, 'Bound by the Economic Constitution: Notes for "Law and Political Economy" in

ensuring contract enforcement) and it maximises market coercion. Yet, even an ordoliberal design involves a political decision on the direction of production and investment that precedes any contingent, atomised, profit-driven decision-making – even if it eventually only institutionalises precisely the mode of production that secures the conditions for such atomised, profit-driven initiative. At the other end of the spectrum, there are models of market socialism similar to contemporary China or such as the one suggested by Brus and Laski, where state ownership of means of production dovetails with the existence of capital, product, and labour markets.¹¹⁹ Presumably, this corresponds to a maximisation of political coercion and a concentration of market coercion. And in between, *planning within capitalism* involves different degrees of public and conscious shaping of economic activity in the pursuit of social objectives – with industrial policies being an example. This means varying levels of reliance on profit-driven private initiative for the organisation of production and allocation of investment. For instance, the emergence of green industrial policies – itself a move towards more political coercion in the organisation of production – does not negate that previous modes of organisation of production relying more heavily on profit-driven private initiative also constituted a deliberate design of the economy. In other words, planning within capitalism may take the form of varying industrial policies, relying on strategic subsidising and the distributive effects of regulatory activity – the focus of this article – but may also involve macroeconomic designs, comprehensive fiscal and monetary policies, tax-and-transfer systems, wage and credit instruments, etc. Fundamentally, the extent of planning within capitalism is determined by the coordinated subsuming of legal rationalities (eg, those associated with entrepreneurial freedom) to overarching objectives set by public power.

Insofar as there are markets for capital, labour, and commodities (ie, excluding command-type economies), the differences between these modes of planning are differences of degree, without a necessary qualitative break even between different regimes of ownership of the means of production. For example, comparing market socialism, as described by Brus and Laski, to industrial policies within economies with private ownership over the means of production indicates that the degree of democratisation of the allocation of resources and the overcoming of the profit motive is dependent upon the contingent institutional formations. For Brus and Laski, the state must abstain from being involved in enterprises' activity, other than exerting control over financial performance to ensure the return on and growth of assets. This presupposes a separation of ownership and management of the enterprise, not unlike the shareholder model of private enterprises. The difference is then between, on the one hand, state-owned but profit-motivated corporations that give part of their revenues to the state from and, on the other hand, private corporations where the state sets rules of corporate governance and taxes profits. Along these lines, Brus' and Laski's attempt to deconstruct the 'indivisibility' of public ownership¹²⁰ and to 'privatize the public' mirrors, in a way, contemporary strategies of 'publicizing the private' in sustainability transitions, for example by dictating that directors' duties involve a duty of care for 'sustainability

Europe' (n 1). See also Q Slobodian, *Globalists: The End of Empire and the Birth of Neoliberalism* (Harvard University Press 2018).

¹¹⁹W Brus and K Laski, *From Marx to the Market: Socialism in Search of an Economic System* (Oxford University Press 1989). On a critical comparison and assessment of different theoretical approaches to market socialism, including this of Brus but also Alec Nove, see Devine (n 20) at 100. The model outlined by Brus and Laski bears similarities with the historical example of market socialism in Yugoslavia. In Yugoslavia, while the means of production were under a regime of social ownership, enterprises were self-managed and workers could retain the product of their work, after the payment of basic charges. As noted by J Vanek, 'Economic Planning in Yugoslavia' in MF Millikan (ed), *National Economic Planning* (NBER 1967) 380, 'the rule governing economic relations between individual firms and the rest of the economy—excepting relations with actual or potential employees—is the law of markets'. As Vanek, writing in 1967, also suggests at 394, 'Yugoslav policy measures are generally as indirect as are those in an average Western economy. There is little difference in substance between Yugoslav techniques of influencing the course of the economy and our own ... There are differences, but of degree rather than substance'.

¹²⁰Brus and Laski *Ibid.*, 138.

matters'.¹²¹ Leaving aside, as beyond the scope of this article, questions about the legitimacy or moral value of different regimes of ownership (public vs private) and concentrating, instead, on the issue state control over the economy reveals that the extent of political/market coercion is not built in the original setup but rather depends upon the contingent regulatory mix.

Assuming, then, that the extent of reliance on profit-driven private initiative for the allocation of resources in market economies is a spectrum of political possibilities inevitably raises the question what we want markets for.¹²² Seeing the market as a 'political project'¹²³ means that defining the purpose and shape of markets is itself an object of political contestation and legitimises democratic planning for directing market processes towards collectively determined priorities. Framing market economies as 'planned' through the allocation of legal entitlements and coercive powers, as well as based on the degree to which decisions around production and investment are entrusted to political sovereignty, highlights the artificial and political character of market economies and, thus, their amenability to the kind of politics that democratises production and investment. Yet, as I will show in Section 6, seeing markets as legally constructed political instrumentalities should not be overstated to the point of obfuscating the structural limits inimical to the market as a mode of social organisation.

The construction of industrial policies, including NEV policies, involves directing market operations to the service of social objectives. The tools for this type of planning are not limited to top-down regulatory controls. Rather, market mechanisms deliberately designed to generate specific social effects may also have a planning effect. Zooming in the NEV case study highlights that planning within markets may be achieved both by administrative decisions and market mechanisms. Assuming the position of legal 'exogeneity' and state 'intervention' in the economy, as discussed above, could lead to the argument that planning is, by definition, only conceivable as the employment of administrative decisions to regulate the market economy. However, from the perspective argued here, the use of market mechanisms could be nothing more than an extra arrow in the quiver of the planner – not necessarily qualitatively different than regulation by administrative decision and democratic fiat. Looking into the case of NEVs, China's and Norway's heavy subsidising of the industry as a demand-side policy has been crucial for the uptake of NEVs. In fact, as China's Industry Plans reveal, the use of market mechanisms, such as consumer subsidies and incentives, was framed as a 'planning' intervention, while the recent NEV production mandate – an administrative decision that forces NEV quotas regardless of demand and consumer preferences – was part of the 'transition to market dominance'.¹²⁴ As Dani Rodrik correctly points out, green industrial policy should be understood as a process of discovery, rather than a list of specific policy instruments.¹²⁵ If market

¹²¹European Commission, 'Proposal for a Directive of the EU Parliament and of the Council on Corporate Sustainability Due Diligence and amending Directive (EU) 2019/1937' (2022) Art. 25.

¹²²The instrumental outlook on the market is not a novelty and most accounts do not portray the market as a self-standing ideal. It could be argued that the market is approached instrumentally by the utilitarianism of law and economics, where it is a means to maximise wealth and economic output, see RA Posner, *Economic Analysis of Law* (Aspen Publishers 2007). However, the instrumental perspective suggested here is different in that it does not target the maximisation of wealth, especially disconnected from questions of distribution, as in the law and economics paradigm. Instead, the market is in the service of social objectives that have been democratically decided, regardless of whether these maximise economic output and without the pretence of steering away from political questions of distribution. Eventually, the market is also an instrumentality in certain variations of its liberal defenses, where it assists in instantiating a social structure wherein individuals can maximise their autonomy, see H Dagan, 'Why Markets? Welfare, Autonomy, and The Just Society' 117 (2019) Michigan Law Review 1289; H Dagan, 'Markets for Self-Authorship' 28 (2018) Cornell Journal of Law and Public Policy 577.

¹²³M Bartl, 'Socio-Economic Imaginaries and European Private Law' in PF Kjaer (ed), *The Law of Political Economy: Transformations in the Function of Law* (Cambridge University Press 2020) 228. On the contestation between left-wing and right-wing approaches to the market economy, see also F Böhm, 'Left-Wing and Right-Wing Approaches to the Market Economy' 135 (3) (1979) Journal of Institutional and Theoretical Economics 442.

¹²⁴For instance, the NEV production mandate also involves a secondary market for trading emission credits, see Section 2.

¹²⁵Rodrik (n 7) at 485.

mechanisms are used to steer production and investment towards directions that would be impossible to reach through entrepreneurial, profit-oriented decision-making, then they operate in the same instrumental register as top-down regulation. In between them, there is only a difference in the degree of coercion exerted by public authorities¹²⁶ – while production mandates are a direct threat for ICEV manufacturers’ operational licenses, subsidies are a threat that competitive production will undercut them.

The same is the case when looking into how prices are engineered. How ‘market determined’ prices are, becomes a question of the degree to which they incorporate social effects. It is argued that while markets can provide information about a range of economic choices to individuals functioning as isolated economic agents, they are incapable of providing meaningful information about the social effect of private economic transactions.¹²⁷ This is blatantly true when considering, for example, the disjunction between prices of goods at end markets of the Global North and social effects of global regimes of production at the Global South.¹²⁸ However, it is not necessarily true. As Oskar Lange pointed out in his contribution to the economic calculation debate, prices may be understood in a *narrow sense* as the exchange ratios of commodities on a market, and in a *wider sense* as the ‘terms on which alternatives are offered’.¹²⁹ For Lange, it is only prices in the latter sense that are required to solve the problem of allocation of resources. Therefore, for advocates of planning as only an alternative to markets, devising prices outside markets¹³⁰ would then allow entering costs (‘externalities’) directly into the price calculation – in a form of ‘non-market’ or ‘planning prices’.¹³¹ However, there is nothing that prevents the planner from incorporating social costs within the price calculation already *within* markets. In fact, as shown above, market prices are anyway engineered by the legal and institutional infrastructure in which they assume a coordinating role. Subsidising NEVs, mandating emission standards, introducing NEV production quotas, excluding NEVs from car purchase restrictions: all these measures inject, to some degree, the social costs of automobile carbon emissions into the price of the commodity. The degree to which social costs are incorporated in prices remains a matter of political contestation. However, this is not to say that pricing externalities is necessarily a strategy that will lead to progressive outcomes: Carbon pricing has been largely ineffective, while it is poised to lead to violent structural readjustments in the Global South when coupled with ‘green’ conditionality lending by the IMF or institutional investors.¹³² Pricing externalities could also disadvantage the poor, whose low willingness to pay places lower value on their preferences, while it could also deepen commodification.¹³³

The example of China shows how a multifaceted instrumentalisation of market processes, involving diverse incentives and regulatory controls, goes beyond the paradigm of pricing externalities. The construction of the NEV market was not only mediated by market prices as *the* sole

¹²⁶This does not account for the fact that the difference between employing market mechanisms or administrative orders might be more multifaceted and have spill over effects, for example by generalising the logic of price. See, Section 6.

¹²⁷D McNally, *Against the Market: Political Economy, Market Socialism and the Marxist Critique* (Verso 1993) at 199.

¹²⁸Indicatively, G Gereffi, *Global Value Chains and Development: Redefining the Contours of 21st Century Capitalism* (Cambridge University Press 2018); J Hickel et al., ‘Imperialist Appropriation in the World Economy: Drain from the Global South through Unequal Exchange, 1990–2015’ 73 (2022) *Global Environmental Change* 102467.

¹²⁹O Lange, ‘On the Economic Theory of Socialism’ 4 (1) (1936) *The Review of Economic Studies* 53 at 54, drawing from PH Wicksteed, *The Commonsense of Political Economy* (Macmillan 1910).

¹³⁰Per Lange, through a process of trial and error, in which computers have a role to play, see O Lange, ‘The Computer and the Market’ in CH Feinstein (ed), *Socialism, Capitalism and Economic Growth: Essays Presented to Maurice Dobb* (Cambridge University Press 1969). See, also Section 5B.

¹³¹McNally (n 127) at 209.

¹³²D Rosenbloom et al., ‘Why Carbon Pricing Is Not Sufficient to Mitigate Climate Change—And How “Sustainability Transition Policy” Can Help’ 117 (16) (2020) *PNAS* 8664; Gabor and Weber (n 5).

¹³³See, J O’Neill, ‘Environmental Markets’ in N Castree, M Hulme and JD Proctor (eds), *Companion to Environmental Studies* (Routledge 2018). For a similar critique of relying on market-based environmental policy and pricing in externalities, see also K Aronoff et al., *A Planet to Win: Why We Need a Green New Deal* (Verso 2019).

drive of investment and consumption. Rather, public investment through subsidies, infrastructure, and research and development; command-and-control urban and environmental regulations; attracting foreign investment and know-how; expanding geopolitical control over the supply of critical minerals; and promoting domestic battery manufacturing by making the allocation of NEV subsidies dependent upon domestic procurement were some of the means employed to steer market dynamics towards the politically set goal of a sustainability transition in the transportation sector. Although it is, eventually, market dynamics that are supposed to deliver the transition – in this case, the uptake of NEVs – the generation of these dynamics is the result of multifaceted public planning. Indeed, addressing climate change as a simple market failure and an externality to be priced in cannot possibly account for the deep interconnections among carbon intensive activities. The purpose of analytical insight into ‘market determined’ prices as planned prices, only differentiated by the degree to which they incorporate social effects, may dispel the naturalised character of prices, and empower planners to use prices as a planning tool. Yet, whether it can deliver the desired outcomes is a matter of strategy and dependent on the breadth of planning and the contingent social and political context. However, the argument that ‘market determined’ prices are, in fact, planned prices encounters a powerful and enduring epistemological opposition. To this I turn in the next section.

5. The epistemological argument for planning

A. The spectre of Hayek

Perhaps the most known, ardent opponent of planning has been F. A. Hayek. Hayek saw planning as a pathway to totalitarianism, involving ‘deliberate discrimination between particular needs of different people’.¹³⁴ As the state engages in valuations of different needs and imposes its perspective across society, it ‘ceases to be a piece of utilitarian machinery intended to help individuals in the fullest development of their individual personality and becomes a “moral” institution’¹³⁵ – in the sense that it imposes on citizens moral valuations. Yet, Hayek’s most enduring critique against planning is the epistemic deficit of central planners: the impossibility, in other words, for central authorities to collect and act upon the dispersed knowledge and localised knowledge that is necessary for the allocation of productive resources.¹³⁶ This powerfully resonates in current critiques of industrial policy that ‘governments do not have the information needed to make the right choices as to which firms or industries to support’.¹³⁷

The launch of the so-called ‘economic calculation debate’ (or, sometimes, ‘socialist calculation debate’) can be attributed to Ludwig von Mises, who in 1920 argued that rational economic calculation under conditions of socialist central planning is technically impossible.¹³⁸ For Mises, only prices guarantee the commensurability of different values and provide a metric for rational calculation among different options in social choices.¹³⁹ This position was rebutted by Oskar Lange, who accepted Mises’ premise about the necessity of prices but rejected that prices can only be formed in markets.¹⁴⁰ Hayek advanced Mises’ position, shifting the discussion from one of

¹³⁴FA Hayek, *The Road to Serfdom* (Routledge 2001) 82.

¹³⁵*Ibid.*, at 80.

¹³⁶See, generally, Hayek, ‘The Use of Knowledge in Society’ (n 19).

¹³⁷Rodrik (n 7) 472.

¹³⁸L von Mises, *Economic Calculation in the Socialist Commonwealth* (Ludwig von Mises Institute 2014).

¹³⁹Mises was arguing against Otto Neurath and socialists who advocated for alternative units of calculation. Neurath advocated for the continuation of wartime central planning, proposing a ‘natural accounting center’ to run the economy as if it were one giant enterprise. In this planned order, money would be unnecessary as production would be driven by objectively determined needs. Instead, all calculation regarding the appropriate levels of inputs and output could be handled in ‘natural’ physical terms. See also J O’Neill, *The Market: Ethics, Knowledge, and Politics* (Routledge 1998) 112.

¹⁴⁰Lange, ‘On the Economic Theory of Socialism’ (n 129).

commensurability to one of epistemology. For Hayek, even if central planners could use a process of trial and error to discover relevant prices, it would be impossible to replicate the dynamic nature of the price mechanism with its automatic adjustments following changes in supply and demand.¹⁴¹ In fact, the assumption of pre-existing knowledge about society's needs and valuations is mistaken, as 'which goods are scarce goods, or which things are goods, and how scarce or valuable they are is precisely one of the conditions that competition should discover'.¹⁴² Instead, for Hayek, prices can coordinate the separate actions of different people because they convey information that is otherwise dispersed in society.¹⁴³ Prices reflect particular information possessed by the participants in the market process, which, in their totality, could not be known to an outside observer.¹⁴⁴

This fits Hayek's broader normative view of the market as a 'spontaneous order', which is not governed by a single end or purpose and instead 'serves the multiplicity of separate and incommensurable ends of all its separate members'.¹⁴⁵ Framing the notion of common purpose as an instinct inherited from tribal society,¹⁴⁶ Hayek advocated for the establishment of abstract rules of conduct as opposed to substantive rules that prioritise specific groups and individuals. A placeholder for different attempts at planning and social engineering, 'social justice' attracted Hayek's critique as meaningless in a market order, where impersonal processes of allocation of goods determine the different fates of its members.¹⁴⁷ This would also exclude attempts to plan within markets. The epistemological paradigm that Hayek ushers us into is one of impenetrable *complexity* of social phenomena. From this perspective, as in any kind of ball game, where knowing the rules and the relative skills of the players is not sufficient to allow predicting with certainty the outcome, so is the case for any social phenomena of organised complexity – we are limited to pattern prediction and cannot deliberately generate outcomes in the pursuit of overarching purposes.¹⁴⁸ In the face of complexity, we must show humility and appreciate the limits of reason and knowledge, resisting the 'fatal striving to control society'.¹⁴⁹

Hayek's epistemological challenge to planning and centralisation has had a long-lasting appeal in legal and social theory, even among those who reject his normative stance on issues around social justice. In Europe, and particularly in Germany, systems theory has relied on the premise that in a functionally differentiated society, comprised of multiple communicative systems, there is neither an apex nor a position of omniscience.¹⁵⁰ Partly an explanation and partly a remedy to the planning crisis of the 1970s, systems theory saw direct communication between systems as in principle impossible. This meant that the political system does not occupy a privileged position in the coordination of society, which makes not only planning but also command-and-control

¹⁴¹B Caldwell, 'Hayek and Socialism' 35 (4) (1997) *Journal of Economic Literature* 1856, 1860.

¹⁴²FA Hayek, 'Competition as a Discovery Procedure' 5 (3) (2002) *The Quarterly Journal of Austrian Economics* 9, 13. See, also FA Hayek, 'Socialist Calculation: The Competitive 'Solution'' 7 (26) (1940) *Economica* 125, 144, where Hayek underlines that 'it is the main merit of real competition that through it use is made of knowledge divided among many persons which, if it were to be used in a centrally directed economy, would have all to enter the single plan'.

¹⁴³Hayek, 'The Use of Knowledge in Society' (n 19) 526.

¹⁴⁴Hayek, 'The Pretence of Knowledge' <<https://www.nobelprize.org/prizes/economic-sciences/1974/hayek/lecture/>>.

¹⁴⁵FA Hayek, *Law, Legislation and Liberty* (Routledge 1982) 108.

¹⁴⁶*Ibid.*, 111.

¹⁴⁷*Ibid.*, 68.

¹⁴⁸Hayek, 'The Pretence of Knowledge' (n 144), according to whom 'to act on the belief that we possess the knowledge and the power which enable us to shape the processes of society entirely to our liking, knowledge which in fact we do not possess, is likely to make us do much harm'.

¹⁴⁹*Ibid.*

¹⁵⁰On systems theory, see N Luhmann, *Theory of Society* (Cultural memory in the Present, Stanford University Press 2012). On its translation in the field of legal studies, G Teubner, 'Introduction to Autopoietic Law' in G Teubner (ed), *Autopoietic Law – A New Approach to Law and Society* (De Gruyter 1987). On the overlap between the Hayekian theory of knowledge and systems theory, see Slobodian (n 118) 224. See, also M Goldmann, 'Public and Private Authority in a Global Setting: The Example of Sovereign Debt Restructuring' 25 (1) (2018) *Indiana Journal of Global Legal Studies* 331, 335.

regulation bound to fail.¹⁵¹ Systems have their own innate logic and code of communication, and it is only within them that solutions to social problems can be conceived and operationalised. As it is impossible to achieve some form of comprehensive centralised knowledge, concrete limitations on the destructive expansion of social systems can only result from a system-specific logic. It was this conceptual premise of ‘unknowability’ of the economy that generated the long legacy of reflexive law as a project of decentralisation, reflexivity, and pluralism.¹⁵² Instead of dictating objectives and the regulatory means for achieving them, the goal became to enhance the self-limiting capacities of social systems, including the economy, and to *embed* social values in their operations as a means to achieve decentralised social transformation – in short, to politicise them.¹⁵³ A long progeny of (especially continental) critical approaches – some indebted to systems theory and some not – ultimately endorse the epistemological standpoint of ‘complexity’ and ‘unknowability’ of the economy, foregoing centripetal social engineering and transformation in favour of agendas of decentralisation and bottom-up mobilisation for sustainability transitions.¹⁵⁴

B. Rebutting the epistemic deficit thesis

However, the thesis of ‘epistemic deficiency’ of public authorities can be rebutted, as it is analytically problematic in at least two ways: First, as an axiomatic statement in itself and, second, as a foundational premise for political action and institutional designs.

With regards to the epistemic deficit of public authorities as an axiomatic statement, a first counterargument can be drawn from current patterns of centralised private control over global

¹⁵¹According to N Luhmann, ‘Limits of Steering’ 14 (1) (1997) *Theory, Culture & Society* 41, 47, ‘like every system, politics cannot transcend itself and act on higher orders. There is no instance that could condition such orders and could supervise their execution’. See, also G Teubner, ‘After Legal Instrumentalism? Strategie Models of Post-Regulatory Law’ in G Teubner (ed), *Dilemmas of law in the Welfare State* (European University Institute, Series A, Law vol 3. Walter de Gruyter 1986) 310–2, arguing that direct, top-down regulation faces a ‘regulatory trilemma’ of under-effectiveness, over-effectiveness, or regulatory capture. See, also G Teubner, ‘A Constitutional Moment? The Logics of “Hitting the Bottom”’ in PF Kjaer, G Teubner and A Febraro (eds), *The Financial Crisis in Constitutional Perspective: The Dark Side of Functional Differentiation* (Hart 2011) 36–7, where Teubner suggests that ‘the political constitution cannot fulfil the role of defining the fundamental principles of other subsystems without causing a problematic de-differentiation—as occurred in practice in the totalitarian regimes of the twentieth century . . . No social sub-system, not even politics, can represent the whole society.’ This essentially Luhmannian perspective should be understood in the context of the post-war reconstruction of liberalism in Germany.

¹⁵²On reflexive law, see generally G Teubner, ‘Substantive and Reflexive Elements in Modern Law’ 17 (2) (1983) *Law & Society Review* 239. The limits of centralisation were already highlighted by Jürgen Habermas, who suggested that modern state interventionism faced a rationality crisis, stemming from the increasing complexity of societal operations and the inevitable inadequacy of legal centralism in regulating them, see J Habermas, *Legitimation Crisis* (Beacon Press 1975).

¹⁵³See, G Teubner, *Constitutional Fragments: Societal Constitutionalism and Globalization* (Oxford University Press 2012). For an early critique of reflexive law, see E Blankenburg, ‘The Poverty of Evolutionism: A Critique of Teubner’s Case for “Reflexive Law”’ 18 (1984) *Law & Society Review* 273. On how this resonates with recent forms of market regulation, particularly in the field of corporate sustainability, see I Kampourakis, ‘The Postmodern Legal Ordering of the Economy’ 28 (1) (2021) *Indiana Journal of Global Legal Studies* 101.

¹⁵⁴Emilios Christodoulidis criticises the agenda of reflexive law and societal constitutionalism, suggesting that re-entries of the political in the economy cannot reshape the finalities dictated by economic reason. Yet, while advancing a vision of political constitutionalism that inevitably invokes hierarchy and political intentionality, his account remains attached to the epistemological premises of systems theory, that is, different social systems having essentially impenetrable innate logics, see E Christodoulidis, *The Redress of Law* (Cambridge University Press 2021). Similarly, PF Kjaer, ‘What Is Transformative Law?’ 1 (4) (2022) *European Law Open* 760, also attempts to go beyond reflexive law but reaffirms that ‘the state has never possessed an “epistemological universal view” that gave it the opportunity to observe and construct society as a whole in one particular moment’. In sync with this epistemic deficiency of the state, Kjaer suggests that the concept of ‘public law’ must be detached from the state and – building on societal constitutionalism – different social systems must be infused with ‘publicness’. Beyond the influence of systems theory, James Scott’s critique of the ‘high modernism’ of planning and social engineering and its incapability of taking into account local knowledge echoes, even if in a different register, Hayek’s epistemology, JC Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (Yale University Press 1999).

production. The notion that markets function as spontaneous generators of knowledge – with economic outcomes supposedly dependent on the inadvertent convergence of individual self-interest – is challenged by the ways in which transnational corporations employ rationalisation and informational tools to direct and control production in global value chains. For example, companies that ‘lead’ global value chains streamline production in a top-down fashion through their contractual governance, as well as through the employment of delivery-on-demand, certification, and open-costing systems – while retaining exclusive access to innovation and know-how.¹⁵⁵ Similarly, the employment of predictive technologies makes possible the elaboration of accurate ‘demand plans’, leading eventually to ‘closed-loop planning’, wherein supply is arranged based on accurate demand forecasts.¹⁵⁶ Forecasting technologies may go as far as Amazon’s ‘anticipatory shipping’, in which orders are packaged and pushed into the delivery network before customers even order them. Current applications of digitalisation reveal the dangers that underlie concentrations of private economic, surveillance, and informational power.¹⁵⁷ At the same time, they also destabilise the ‘unknowability’ thesis, highlighting that framing global markets as spontaneous, self-organising economic activity constitutes an idealised and misleading account of global production.¹⁵⁸

Furthermore, the ‘epistemic deficiency’ thesis is problematic in itself because it – counter-intuitively – reduces the spectrum of knowledge-formation. In the Hayekian epistemological paradigm, knowledge is conceptualised as something that is by default dispersed in the anonymous, horizontal operations of society. While the complexity of societal operations and the knowledge captured therein must indeed be conceded, there are forms of knowledge that are necessarily mediated by some instance of collective and political determination. Knowing what is a ‘need’ is not a result of individual epiphany but is inextricably linked to the social and political bonds that make up the polity in which an individual lives.¹⁵⁹ Price signals might convey dispersed knowledge, but they themselves depend on certain knowledge priors that stem from the values and guiding norms that underpin the institutional infrastructure of a polity. Even in Hayek’s minimalist model, where the state only sets abstract rules of conduct for its members, these abstract rules convey certain values and understandings that determine derivative forms of knowledge. Whether, for instance, these rules advance unlimited contractual freedom or clear-cut moral limits of markets constitutes a knowledge prior. Such priors set by legal and political infrastructure change the preferences of individuals, provide varying sets of incentives, etc. As the political process of will-formation *by definition* generates knowledge, there is no conceptual reason not to expand the realm of knowable needs by means of the political process. Sustainability transitions depend all the more on the primacy of the political as a means of articulating collective needs, especially considering that such transitions are particularly relevant in areas of market ‘externalities’. For example, while price signals may indeed convey knowledge as to which materials may be increasingly necessary for the shift in production required for NEVs, they would not, by themselves, signal to car manufacturers that they need to change production targets.

With regards to the epistemic deficit being an insurmountable impediment to centralised coordination of economic activity, the first counterargument follows the logic outlined just above and relates to the omnipresence of such central coordination. As illustrated in the previous section, any structuring of the economy involves an element of planning, at least through the allocation of legal

¹⁵⁵See, I Suwandi, *Value Chains: The New Economic Imperialism* (Monthly Review Press 2019).

¹⁵⁶Alicke et al. (n 115).

¹⁵⁷JE Cohen, *Between Truth and Power: The Legal Constructions of Informational Capitalism* (Oxford University Press 2019); S Zuboff, *The Age of Surveillance Capitalism* (PublicAffairs 2019).

¹⁵⁸BL McKean, *Disorienting Neoliberalism: Global Justice and the Outer Limit of Freedom* (Oxford University Press) 15, 52.

¹⁵⁹One could also argue that in human societies, certain fundamental needs, such as the need for nutrition, sanitation, shelter, and healthcare, are knowable and universal. See, for example, see M Nussbaum, ‘Human Functioning and Social Justice’ 20 (2) (1992) *Political Theory* 202; A Sen, ‘Human Rights and Capabilities’ 6 (2) (2005) *Journal of Human Development* 151.

entitlements and a measure of price engineering. If planning is indeed ubiquitous and inevitable, then there is again no conceptual argument as to why public authorities should restrain themselves to a minimum of planning – the difference between minimum and extensive planning is one of degree, not of substance. Rather, the argument can only be political, ie, extensive planning is too restrictive of individual freedom of choice, or practical, ie, planning that involves extensive price fixing works only ‘on paper’.¹⁶⁰

Finally, a more radical proposition against the epistemic deficit thesis as a restraint against planning is that comprehensive knowledge (which might be, indeed, impossible to attain) is not necessarily a prerequisite for planning and regulation of social and economic activity. Knowledge could instead be the outcome of regulatory activity. One aspect of economic planning where this could be relevant is price engineering. As discussed, the question is not whether but to what extent public policy is involved in the determination of prices. On this issue, market socialists, the analysis of which became particularly relevant during China’s economic reforms, suggested that price formation is possible through a process of trial and error, which, in fact, follows the same general equilibrium models and is not substantively different from competitive markets.¹⁶¹ While currently far from orthodox, comprehensive price planning within the dual-track economic system was employed in China until 1989. Yet, as the example of NEV subsidies illustrates, targeted policies of price planning remain common and effective, even if they distort the ‘interplay of individual valuations’.¹⁶²

More broadly, planning within markets can cut through complexity by allocating resources and attributing responsibility regardless of the conflicting logics of social systems and the dispersed knowledge that constitutes societal operations. In turn, such market regulation could lead to systemic adaptation and generation of new knowledge. In that direction, it appears that the European Green Deal and its employment of cross-cutting rules to achieve carbon neutrality take some distance from paradigms of ‘new governance’ that rely on induced self-regulation and organisational change.¹⁶³ A similar trend can also be detected in the field of corporate sustainability, where recent transparency and human rights due diligence legislation forces lead firms to abandon their deliberate ignorance about production methods in supply chain operations.¹⁶⁴ This, in turn, burdens lead firms with regulatory authority, responsibility, and possibly liability for misconduct across supply chains.¹⁶⁵

A final argument that could suggest that comprehensive knowledge is indeed not a prerequisite for centralised coordination of economic activity comes from China’s ‘experimentalism under hierarchy’.¹⁶⁶ The anti-planning argument that lies behind the Hayekian epistemological challenge

¹⁶⁰Hayek has indeed advanced both arguments. In Hayek, *The Road to Serfdom* (n 134) he has made the political case against planning as an undue limitation of individual freedom resulting from the imposition of particular valuations, and in FA Hayek (ed), *Collectivist Economic Planning* (Ludwig von Mises Institute 2015) he has made the practical case at against price fixing through trial and error, suggesting that it would require solving millions of equations on the basis of huge amount of data, the results of which would become immediately obsolete.

¹⁶¹Following a general equilibrium model, Lange showed that a trial and error process is no different than the process followed in competitive markets and, thus, there is no theoretical distinction between a competitive ‘free’ market system and market socialism. Lange, ‘On the Economic Theory of Socialism’ (n 129). On how the theorists of the economic calculation debate, and especially Lange, did not sufficiently consider the questions of incentives and how this was emerged by the new generation of economics of information, see Caldwell (n 141).

¹⁶²L von Mises, *Human Action: A Treatise on Economics* (Rechnery Co 1966) at 331.

¹⁶³See, O Lobel, ‘The Renew Deal: The Fall of Regulation and the Rise of Governance in Contemporary Legal Thought’ 89 (2004) *Minnesota Law Review* 342; J Black, ‘Decentering Regulation: Understanding the Role of Regulation and Self-Regulation in a “Post-Regulatory” World’ 54 (1) (2001) *Current Legal Problems* 103.

¹⁶⁴Indicatively, the EU Directive 2014/95, the United Kingdom (UK) Modern Slavery Act of 2015, the French Duty of Vigilance Law of 2017, the German Supply Chain Law of 2021, or the proposals for a Corporate Sustainability Reporting Directive and a Corporate Sustainability Due Diligence Directive.

¹⁶⁵R Chambers and AY Vastardis, ‘Human Rights Disclosure and Due Diligence Laws: The Role of Regulatory Oversight in Ensuring Corporate Accountability’ 21 (2) (2021) *Chicago Journal of International Law* 323 at 345.

¹⁶⁶S Heilmann, ‘Policy Experimentation in China’s Economic Rise’ 43 (1) (2008) *Studies in Comparative International Development* 1.

is that institutions are better developed through long processes of evolutionary development rather than through deliberate designs. The relative success of Chinese attempts for economic and institutional innovation challenge this position. Beyond trial and error, experimentation is a purposeful and coordinated activity that seeks to produce policy options from an initially controlled implementation. The experimentation process is facilitated by the central government's power to bypass legislative bodies in formulating interim regulations on structural economic reform.¹⁶⁷ While this raises rule of law issues that appear incompatible with liberal democracies, discretionary experimentation through implementation in advance of legislation is crucial for the success of the model.¹⁶⁸ At the same time, experimentation allows new economic policies and institutional formulas to be tested in a controlled environment and to draw from local knowledge and bottom-up initiative. This indicates that tapping on dispersed knowledge and centripetal transformative energy can exist in a dialectical relationship, where the former can only inform the latter after the latter has already been launched – in other words, political voluntarism and ambition could possibly unleash new ways of utilising decentralised societal knowledge in the design of economic policies. Overall, while such processes of legal and social engineering may entail a degree of indeterminacy, this does not constitute an argument against subsuming legal instruments – among which also those fundamental to market-building – to political rationalities. However, while central planning within markets can withstand the epistemological critique, it inevitably encounters certain structural limits that circumscribe its potential for socio-ecological transformation.

6. The limits of planning within markets

Highlighting the political dimension of the market and its capacity to function as an instrument to achieve predetermined objectives does not mean that there is no limit to what it can achieve. In fact, it is bound to face limits that relate to the market per se as a mode of social organisation.

The argument that planning is ubiquitous might engender the tentative conclusion that there is no such thing as 'market logic' – the market, from this perspective, would be nothing more than an assemblage of legal and institutional arrangements. Indeed, market anti-essentialist positions have been argued along these lines.¹⁶⁹ These positions inevitably highlight the political, contingent, and shapable character of markets, and are therefore consistent with the position of the market as an instrumentality advocated in this article.

However, the same conclusion can be reached even if one accepts that markets *do* have certain essential properties. These essential properties need not be actualised in all circumstances. As O'Neil shows in his nuanced defence of essentialism, accepting that markets have certain essential qualities does not mean that they produce necessary effects, because such effects depend on various other factors.¹⁷⁰ Instead, these qualities only indicate the predilection to produce certain kind of effects. For example, while the logic of price might be an essential feature of markets, this does not necessarily entail a fully commodified society. The institutional framework within which markets operate sets the boundaries for the degree to which certain of its essential features might emerge. Therefore, an essentialist position towards markets can also accommodate the vision of the market as a political project and an instrumentality.

¹⁶⁷*Ibid.*, 6.

¹⁶⁸*Ibid.*, 9.

¹⁶⁹See, B Hindess, *Freedom, Equality and the Market: Arguments on Social Policy* (Tavistock 1987); Lang (n 111). See, also S Moyn, 'Thomas Piketty and the Future of Legal Scholarship' 128 (2) (2014) *Harvard Law Review* 49, according to whom there is no such thing as capitalism with an overarching logic, only arrangements that promote or lessen inequality.

¹⁷⁰O'Neill, *The Market* (n 139) 7.

However, if the market does indeed possess certain essential features, then it follows that the institutional context cannot completely transform or constrain such features. This means that there are inherent limitations in planning within markets and using the market as a tool of delivering on political objectives, including sustainability transitions. If, for example, the profit motive is an essential feature of markets, then all market-based institutional formations will be permeated by it. Nevertheless, this does not necessarily neutralise the functional and coercive power of market processes. The profit motive itself can be instrumentalised to increase the effectiveness of planning, as highlighted in case of NEV subsidies for lowering purchase costs. More broadly, this article sought to argue that production within the logic of the price and production on the basis of social need are not by default always mutually exclusive. As illustrated through the case study of China, the political can restructure the boundaries of markets to impose its own determination of social needs, even if subsequently production follows the logic of the price. However, this concedes significant ground when it comes to broader visions of social transformation. Relying on the profit motive means that no effort is made to seek the foundations of new motivations and overcome the alienation of individuals from society.¹⁷¹ In addition, relying on profit-driven private initiative – even if steered towards social objectives – runs the risk of generalising the market logic of cost-efficiency. Therefore, while the profit motive might not thoroughly hinder subsuming capital formation and investment and production decisions to the logic of political sovereignty, it does limit the extent to which planning can be a catalyst for social transformation that goes beyond the achievement of concrete objectives.

Planning within markets is also limited by the original institutional setup upon which planning seeks to become functional. Increasing the level of central coordination within markets with the aim to set in motion sustainability transitions might encounter obstacles associated with the encasement of legal protections for capital.¹⁷² As market freedoms, broad understandings of property rights, and undistorted competition often enjoy protection at a constitutional, supranational, or international level, their revision or reversal is likely to prove politically challenging or even unfeasible. Indeed, inoculating the economy from democratic and political contestation has been the normative dimension of the ordoliberal project of economic constitutionalism.¹⁷³ Yet, the original institutional setup does not constitute a structural limit to planning, as treaties and constitutions are eventually subject to contestation and review.

Furthermore, the possibility to plan within markets and to direct production and investment beyond the logic of profit does not mean that markets cease to be a site of social power.¹⁷⁴ Michal Kalecki's challenge to full employment policies in class-based societies is particularly relevant in that regard.¹⁷⁵ According to Kalecki, such policies are bound to face opposition from private interests, upon which the state does not have comprehensive supervisory power. The extent of the state's power to coerce private actors depends on the political and historical context and is different in the case studies that I examined in this article, with China being an outstanding example. As recent socio-legal work highlights, in liberal capitalist economies, the extensive interweaving of

¹⁷¹See, Brus and Laski (n 119) 36.

¹⁷²On the concept of 'encasement', see Slobodian (n 118). For useful illustrations, see A Kapczynski, 'The Law of Informational Capitalism' 129 (2020) *The Yale Law Journal* 1460.

¹⁷³See, Kampourakis, 'Bound by the Economic Constitution: Notes for "Law and Political Economy" in Europe' (n 1); M Wilkinson, 'Authoritarian Liberalism' in E Nanopoulos and F Vergis (eds), *The Crisis Behind the Eurocrisis* (Cambridge University Press 2019).

¹⁷⁴For a critique that agendas of green Keynesianism do not sufficiently 'reckon with the position and power of that class's opposite number, insofar as they retain the classic social-democratic premise that the state can serve two masters', see N Fraser, 'Climates of Capital: For a Trans-Environmental Eco-Socialism' 127 (2021) *New Left Review* 94, 125.

¹⁷⁵M Kalecki, 'Political Aspects of Full Employment' 14 (4) (1943) *The Political Quarterly* 322, 326, according to whom 'discipline in factories and political stability are more appreciated by business leaders than profits'.

public-private legal regimes and the diffusion of the revolving-door phenomenon make the dependence of the state upon private interests especially pervasive.¹⁷⁶ In addition, a simplistic portrayal of public authorities and planners as ‘rule makers’ and private actors as ‘rule takers’ might be misleading.¹⁷⁷ The transnational dimension of most powerful private actors might mean that they are able to eschew substantive compliance, while at the same time having quasi-regulatory authority over production along their global value chains. Not unlike the constraints associated with the original institutional setup, the resistance of powerful market actors to projects of realignment is not a limit that cannot be at least partially overcome. As Kalecki himself recognised with reference to the macromanagement of full employment, ‘full employment capitalism’ is not a conceptual impossibility, even if new social and political institutions would have to be developed to sustain it.¹⁷⁸ Yet, planning within markets must start from an awareness of the lack of omnipotence of public planners and the need for internationally coordinated measures, while policies have to be subjected to constant reassessment to avoid perverse incentives and creative compliance.

Besides ‘soft’ limits, what fundamentally circumscribes the potential of planning within markets is that it operates on the level of exchange relations, as opposed to production relations.¹⁷⁹ This means that even if one were to assume that the forms of planning and market regulation introduced by the European Green Deal eventually deliver on the goal of carbon neutrality, the success is likely to be limited to that objective only. Creating incentives for the production of certain goods or services, or even outright prohibiting certain types of exchange (ie, bonds not sufficiently ‘green’) or products (ie, carbon emitting ICEVs) does not affect social relations of production, where value is created. As such, planning within markets leaves the exploitation rooted in social relations of production untouched. This is especially the case considering that the described industrial policies do not fundamentally address labour relations, nor do they introduce more robust elements of economic democratisation.¹⁸⁰ Insofar as labour remains both materially and procedurally disempowered in the control of the production process, expansionary capitalist dynamics cannot be sufficiently contained. As a result, sustainability transitions are likely to be construed as projects of environmental viability within the framework of sustainability capitalism, as opposed to genuine agendas of climate and social justice.¹⁸¹

Any reappraisal of the potential of the market as a political instrumentality cannot and should not exhaust the modalities and visions of social transformation. Looking beyond the horizon of sustainability capitalism requires challenging the market as a totality.¹⁸² Diverse forms of decommodification and non-market logic, ranging from decentralised commons to

¹⁷⁶See, A Vauchez and P France, *The Neoliberal Republic: Corporate Lawyers, Statecraft, and the Making of Public-Private France* (Cornell University Press 2021).

¹⁷⁷G Gereffi, J Humphrey and T Sturgeon, ‘The Governance of Global Value Chains’ 12 (1) (2005) *Review of International Political Economy* 78; Gibbon et al., ‘Governing Global Value Chains: An Introduction’ 37 (3) (2008) *Economy and Society* 315.

¹⁷⁸Kalecki (n 174) 331.

¹⁷⁹According to McNally (n 127) 175, what distinguishes capitalism is not the existence of a market per se, but the fact that basic social relation of production is structured in market terms, ‘around the sale and purchase of human labour power’.

¹⁸⁰However, this critique may be relevant for even more ambitious projects of green Keynesianism, including the proposed Green New Deal in the USA According to Fraser (n 173) 125, green Keynesian projects often presume an insufficiently broad view of the working class.

¹⁸¹On how the notion of a ‘green economy’, based on green growth, has subjugated non environmental (eg, social, political, cultural) dimensions of sustainability, see T Wanner, ‘The New ‘Passive Revolution’ of the Green Economy and Growth Discourse: Maintaining the ‘Sustainable Development’ of Neoliberal Capitalism’ 20 (1) (2015) *New Political Economy* 21. On how environmental sustainability is not possible without radical change in relations of production, see the conclusion in S Ponte, *Business, Power and Sustainability in a World of Global Value Chains* (Zed 2019).

¹⁸²E Christodoulidis, ‘Social Rights Constitutionalism: An Antagonistic Endorsement’ 44 (1) (2017) *Journal of Law and Society* 123, 126.

institutions centered on degrowth to central forms of non-market planning via digital technologies, could redress the structural shortcomings of markets in delivering sustainable – this time broadly construed – outcomes.¹⁸³

Yet, expanding rationalities of decommodification and strategically deploying markets do not necessarily have to be mutually exclusive projects. Rather, if framed under an overarching normative vision, they could constitute parts of broader strategies for sustainability transitions. For example, as Daniel Rosenbloom et al highlight with reference to the transportation sector, decarbonisation might pass through the development and promotion of new technologies, including NEVs, through changes in how transportation services are regulated or fundamentally conceived as business models, but also through changes in urban planning and lifestyles.¹⁸⁴ Sustainability transitions in the transportation sector could then involve a range of planning measures, from a progressive carbon tax, to public investment in public transport infrastructure and new technologies, to the decommodification of certain forms of mobility, to regulations on urban planning, etc. The employment of different tools and strategies in different social contexts needs to operate under a broader framework of *normatively guided pragmatism* and ‘principled opportunism’¹⁸⁵ that may flesh out alternative visions of a democratic political economy. This fundamentally instrumental perspective relies on envisioning how different institutional forms and legal rationales may be employed to materialise an articulated political and social agenda. At the same time, it constitutes an instrumentalism that does not exhaust itself in partial legal reforms or prescriptions about contingent policy tools – shifting instead the focus on the broadly conceived capacity of law to contribute to the constitution of social relations, modes of exchange and interaction, or ideational categories. This constitutive dimension of law and regulation means that planning can enable a coordinated channeling of resources and an interplay of complementary capacities in ways that would be impossible for reforms pivoting only on one legal and institutional form (eg, ‘more rights’, ‘more state’, ‘more commons’, etc.). The emphasis on *material ends* may flesh out underlying shared ambitions of diverse transformative agendas, enabling them to operate as inclusive building blocks of a project of normatively guided legal and social engineering.¹⁸⁶ Planning, from this perspective, involves subsuming legal rationalities and instruments – among which the occasional, instrumental deployment of the coercion of market mechanisms – to the long-term goal of socio-ecological transformation.

7. Conclusions

This article sought to highlight the potential and limits of the market as a political instrumentality in the service of sustainability transitions. Drawing from the comparative case study of the transition to NEVs in China, the USA, and the EU, I traced a soft turn to legal instrumentalism and to planning within markets. Even if this current turn is inadequate for the magnitude of socio-economic changes required to address climate change, it opens a window to new forms of institutional imagination. These could involve the strategic deployment of market mechanisms, combined also with expansive decommodification that may overcome the structural shortcomings of the market as a mode of organising economic activity. The current mutations of ‘sustainability

¹⁸³See, S Bailey and U Mattei, ‘Social Movements as Constituent Power: The Italian Struggle for the Commons’ 20 (2) (2013) *Indiana Journal of Global Legal Studies* 965; G Kallis, *Degrowth* (Agenda Publishing 2018); S Federici, *Re-Enchanting the World: Feminism and the Politics of the Commons* (PM Press 2019); Christodoulidis, *The Redress of Law* (n 154). On planning as a postcapitalist project, C Sorg, ‘Failing to Plan Is Planning to Fail: Toward an Expanded Notion of Democratically Planned Postcapitalism’ *OnlineFirst* (2022) *Critical Sociology* 1.

¹⁸⁴Rosenbloom et al. (n 130).

¹⁸⁵R Knox, ‘Marxism, International Law, and Political Strategy’ 22 (2009) *Leiden Journal of International Law* 413, 433, who recounts (and nuances) Lukács’ position that ‘law should always be openly invoked instrumentally and openly subordinated to political considerations, with the particular legal arguments changed whenever the particular political needs change’.

¹⁸⁶See, I Kampourakis, ‘Legal Theory in Search of Social Transformation’ 1 (4) (2022) *European Law Open* 808.

capitalism' and the tentative turn to more pronounced forms of centralised economic coordination reveal in a forthcoming way the extent to which market processes are deliberate products of legal arrangements. As this restates the political possibilities encased within markets, political contestation about climate action will involve both the content and shape of the market *and* the prospects and alternatives beyond it.

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