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A Green New Deal without growth? Theoretical reflections and empirical studies

Ph.D. Thesis

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Abstract

This thesis contributes to examining the political economy of ambitious climate change mitigation, specifically with regard to the Green New Deal and degrowth discourses. I theorize a theoretical framework that brings together the main strengths of these discourses, which I term 'Green New Deal without growth'. In the various chapters of the thesis I respectively investigate the policy, financial, and political dimensions of this framework. I find that the key policy proposals for a 'Green New Deal without growth' are i) public investments for financing the energy transition; ii) industrial policies to lead the decarbonisation of the economy; iii) the socialisation of the energy sector to allow longer investment horizons; iv) the expansion of the welfare state to provide social protection to citizens in the context of heightened environmental vulnerability. In terms of financing, I argue that budget reallocation and taxation increases are valuable funding policies for a 'Green New Deal without growth'. However if deficit spending is needed to fund green investments, it is important for governments to collaborate with their respective central banks to monetize public debt in order not to increase the debt-to-GDP ratio. Finally, I find that fertile political ground for a 'Green New Deal without growth' exists among left and green Members of the European Parliament. The thesis is based on a mixed-methods approach focusing on transdisciplinary research and mobilizes concepts from the interconnected disciplines of environmental politics and ecological economics.

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Chapter 1

Introduction

The IPCC's Sixth Assessment Report estimates that in order to have a 50% to 66% chance of keeping global warming below 1.5°C, global emissions need to be reduced to around half their present level by 2030 and reach net-zero by 2050. The difficulty of this challenge cannot be overstated. Governments must develop credible and actionable proposals for drastically reducing their emissions in line with the goals enshrined in the Paris Accord of 2015. This objective can be attained only if countries succeed in decarbonizing their productive and infrastructural systems, while at the same time social changes on the consumption side occur in earnest. In this thesis, I engage with the scholarly and policy literature of two main mitigation discourses that in recent years have gained prominence in the international policy debate: the Green New Deal (GND) and degrowth. The research questions I engage with pivot around the complementarity of these two discourses and the main political and economic hurdles they face in being turned into real-world policy making. In investigating these questions, I theorize a policy framework that brings together the main strengths of these discourses, which I term 'GND without growth'.

Chapter 1 of the present thesis includes a literature review in which I examine the main peer-reviewed papers, policy reports, and opinion articles on climate change mitigation. The literature review outlines the contours of the ongoing debate on the need for rapid decarbonization in order to avert dangerous climate change and achieve the objectives enshrined in the Paris Accord. Specifically, I discuss the renewed debate on the pivotal role of the State in financing and coordinating the green transition. Within this debate, I identify two main strands of radical climate politics that given their prominence in the public debate are worth discussing in greater detail: the GND and degrowth. For each one of these discourses, I discuss their genealogy and their main features, as I do for some of their potential limits. Such considerations lead to the research questions that

guide the ideas presented in the following chapters of the thesis. I then present the questions guiding my research and explain how each chapter in the thesis focuses on a specific topic of analysis regarding the 'GND without growth' framework. I aim at addressing the research questions through the theoretical lens provided by the disciplines of ecological economics and environmental politics, which I describe in the theoretical framework section. Subsequently, I explain the methodology I employed to conduct my research.

In chapter 2, I argue that instead of seeing the GND and degrowth as antagonistic discourses and trying to prove which one is right and which wrong, it is more constructive to assess the strengths and weaknesses of each in order to identify possible synergies, while recognizing tensions. In chapter 3, I ask how governments of high-income countries can finance a 'GND without growth' and I identify on a bundle of three fiscal and monetary tools suitable for this task: taxation increases, public budget reallocations, and debt monetization. In order to ground my analysis, I focus on financing a GND in Italy as a theoretical case study given that this country is unlikely to experience high levels of economic growth in the future for a variety of reasons. In chapter 4, I use Q methodology to assess the viewpoints of 41 sitting Members of the European Parliament on the GND and degrowth. The aim of this chapter is to explore potential points of convergence on specific green policies among politicians from different political camps. Finally, chapter 5 is dedicated to analysing the research findings from the various chapters and explore their interactions. I then turn my attention to a number of key aspects of enquiry that emerged while conducting research on the 'GND without growth' framework and that could be explored in-depth in future scholarship.

Literature Review

The politics of climate change mitigation

The term 'climate change' indicates alterations to the Earth's weather patterns and an overall increase in atmospheric temperature originating in human activity since the Industrial Revolution (IPCC, 2021). Climate change is caused by the emission of carbon dioxide, methane, and other greenhouse gases from burning fossil fuels, deforestation, intensive agriculture, steelmaking, and cement production (IEA, 2018). Climate change mitigation consists of actions to limit the activities contributing to the increasing concentration of greenhouse gases in the atmosphere (Fawzy et al., 2020). Climate change mitigation policies have been over time coordinated at the global level through numerous diplomatic negotiations. The first climate conference organised by the United Nations was held in Rio de Janeiro in 1992 and was known as 'Earth Summit'. The most important outcome of this conference was the establishment of the international environmental treaty 'United Nations Framework Convention on Climate Change' (UNFCCC) which has ever since acted as an umbrella for periodic conferences, known as Conferences of the Parties (COP), to coordinate climate policies. In 2015, in the context of COP21 countries signed the Paris Agreement which enshrines the objective of keeping the rise in mean global temperature to well below 2°C above pre-industrial levels and preferably limit the increase to 1.5°C.

Yet, the current trajectory of global greenhouse gas emissions does not appear to be consistent with limiting global heating to below 1.5 or even below 2 °C (IPCC, 2021). Looking at the Keeling Curve—a graph of the accumulation of CO₂ in the Earth's atmosphere—it is evident that the rate of greenhouse gas emissions has yet to slow down in spite of all the climate conferences that have taken place in recent decades (Figure 1). While greenhouse gas emissions have been increasing since the Industrial Revolution, more than half of these emissions have occurred in the last 30 years (Lamb et al., 2021). Consequently, according to the IPCC AR6

the world is on track for 3.2 °C warming by 2100 if current NDCs are maintained unchanged. This led Inger Andersen, executive director of the UNEP, to state: “It is all very well for leaders and governments to claim that they have a net-zero target, but if they don’t have plans as to how to get there, and their 2030 targets are not aligned with net-zero, then, frankly, these net-zero targets are just paying lip service to real climate action” (Hausfather & Forster, 2021).

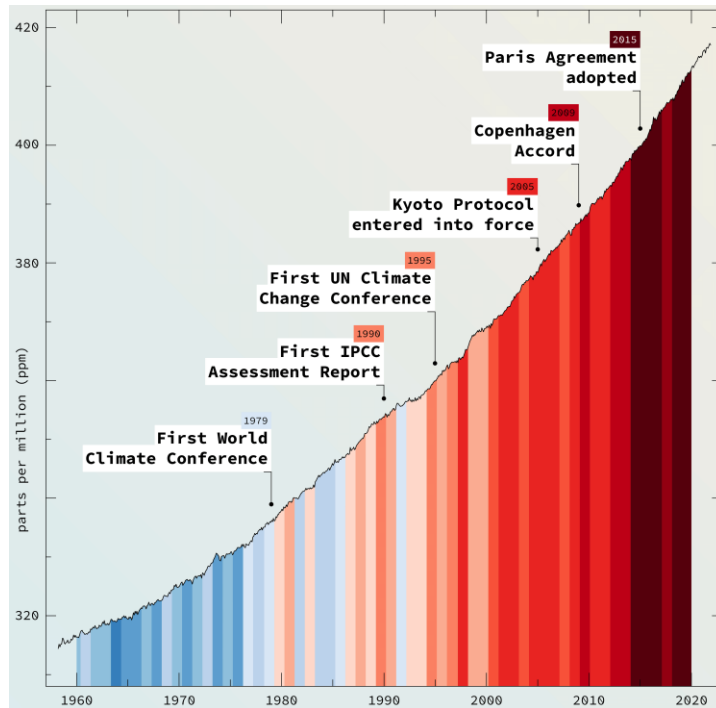


Figure 1. Trends in atmospheric CO2 and global temperature change against dates of major climate diplomacy milestones. Source: Sustentio (2022).

The basic principle of climate change mitigation is that the longer we wait to start reducing emissions, the steeper the reduction will need to be. This has to do with the progressive shrinkage of the remaining carbon budget. If humanity had started reducing emissions in 2000 it would have been sufficient to achieve a mitigation rate of 2% per year, but since that was not the case the task now at hand is much more daunting: if we start reducing emissions in 2022, we will need to achieve a mitigation rate of 10% per year with the goal of achieving net zero shortly after 2050 (Figure 2). Without the use of negative emission technologies yet unproven at scale (such as bioenergy with carbon capture & storage and direct air capture), this decarbonization trajectory is monumentally difficult to achieve. Additionally, it should be borne in mind that this

decarbonization pathway is based on a carbon budget at the global level without differentiation on a country-by-country basis. But given the differentiated historical responsibility of countries in emitting greenhouse gases and consequently in their appropriation of the carbon-absorbing capacity of the atmosphere—which is a global common—, an increasing number of researchers (e.g., Hickel, 2020; Warlenius, 2018; Sultana, 2022) have claimed that the carbon budget should be partitioned among countries on a principle of fairness. All these considerations point to an even steeper decarbonization pathway for wealthy countries, arguably to the extent of achieving net-zero emissions in the 2030s.

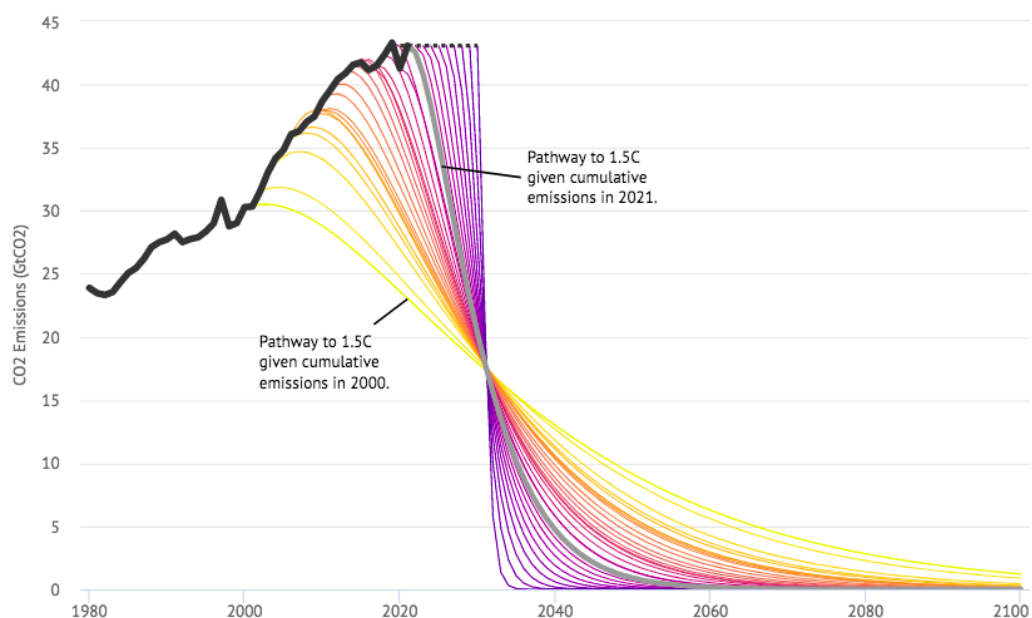


Figure 2. Emission reduction trajectories associated with a 66% chance of limiting warming below 1.5C by starting year, without a reliance on net-negative emissions. Source: Hausfather (2021)

The urgency of a steep decarbonization trajectory has recently led a growing number of scholars, policy makers, and activists to call for the State to play a direct role in coordinating and financing climate change mitigation rather than relying solely on market incentives—such as subsidies, taxes, and emissions trading scheme—(Haley, 2017; Zhang & Andrews-Speed, 2020; Jolink & Niesten, 2021; Aronoff et al., 2020). This policy approach is encapsulated in Keynes’ advice, formulated in the essay *The end of laissez-faire* (1926): “The important

thing for government is not to do things which individuals are doing already, and to do them a little better or a little worse; but to do those things which at present are not done at all.” The importance of public investments ensues from the observation that the green transition will bring competitive returns over much longer timeframes than traditional financial markets expect (Yousaf et al., 2022). And even more problematic for the involvement of private companies is the fact that investments in ecosystems’ regeneration might not bring conventional financial returns at all. Such considerations lead Jackson (2009: p.82) to argue that the ‘ecology of investment’ will have to change: “investment in long-term infrastructures and public goods will have to be judged against different criteria. And this may mean a substantially enhanced role for public sector investment and asset ownership. The public sector is often best placed to identify and protect long-term social assets since its rates of return are typically lower than commercial ones, allowing longer investment horizons and less punishing requirements in terms of productivity.”

Mazzucato (2013) claims that in the history of technological innovation public institutions have played a critical role as ‘investors of first resort’. For instance, public investments enable long-term investments to projects supporting environmental and social purposes, which private actors often deem either too risky or to be insufficiently profitable. On top of financing, Bossie and Mason (2020) maintain that the role of the government should be to solve coordination problems across infrastructural sectors in order to foster synergies and drive down operating costs. Hence, debates on how to coordinate and finance the green transition should start from the assumption that most of the infrastructures that need to be transformed are essentially a public good (Sgroi, 2021). Treating climate change as a public infrastructure challenge—rather than as a private market failure—brings a range of advantages that pricing and regulation alone cannot provide: “it enables long time horizons that private investors are unlikely to tolerate; planning and coordination across sectors of the economy to integrate technology, infrastructure, and institutions necessary to achieve deep decarbonization; and low-cost public finance that could make

the price of the energy and climate transition more manageable” (Nordhaus, 2019).

In the following sections of the literature review, I discuss two master discourses on climate change mitigation that represent a break with traditional market-based environmental policy: the Green New Deal and degrowth. While they differ considerably between each other and have divergent genealogies, they represent a re-politicization of the green transition narrative and posit the importance of collective action and institutions in fostering change. Both the Green New Deal and degrowth re-politicize climate policymaking in the sense that they postulate the centrality of democratic processes in allocating the costs and benefits of the green transition and in articulating a cultural transformation away from deregulation. After all, according to Kallis (2018), “climate change is a political problem, in the real sense of the word ‘political’, meaning a problem involving competing visions of the kind of world we want to live in.”

Green New Deal

The GND aims at pairing ambitious climate change mitigation measures with labour and social programs (Aronoff et al., 2019). For instance, House Resolution 109—which was presented to the US Congress in 2019 under the title *Recognizing the duty of the Federal Government to create a Green New Deal*—is not just focused on emissions reductions only, but it enshrines also social objectives, such as creating high-quality employment, providing re-skilling training to workers affected by the transition, expanding the welfare state to strengthen the resilience of communities to the increase in frequency of extreme-weather events (Pérez, 2021). While it first originated in the US in 2018, the GND has progressively expanded worldwide. For example, in 2019 alone the European Union presented the European Green Deal (EGD), the Labour Party in the UK put forward its own GND (under the banner of *A Green Industrial Revolution*), and activists and researchers published the *Green New Deal for Europe*. However, this propagation of GNDs is not only happening in the Global

North. From all corners of the planet new proposals have emerged that break with the dominant EU- and US-centric viewpoints, such as the *Southern Ecosocial Deal* or the *Red Deal: Indigenous Action to Save Our Earth* (Ajl, 2021).

The GND discourse has been elaborated by so many grassroots groups, think tanks, institutions, and political parties that in its various formulations it can include a wide array of proposals. For the sake of categorization, I propose a conceptualization that identifies a ‘green core’ of proposals and then additional socio-economic proposals increasingly radical in their socialistic nature, the ‘red expanding circles’ of Figure 2. We can say that all GND discourses, at a minimum, include the proposals of public investments for decarbonization and the creation of green jobs aimed at providing goods or services that benefit the environment or conserve natural resources. The circle of ‘environmental justice’ refers to making reparations for the historical cost-shifting of environmental externalities to the detriment of minorities within countries and for the ecological debt that Global North countries have toward the Global South (Aronoff et al., 2019; Ajl, 2021). The circle of ‘public ownership of utilities refers’ to the socialization (either at the national, regional, or municipal level) of the infrastructures necessary for the green transition: beyond energy and water, this refers also to public transportation, recycling facilities, and broadband networks (Kishimoto & Petitjean, 2017). The circle of ‘job guarantee’ refers to a permanent and nationally funded program that supplies employment opportunities on demand for all who are ready and willing to work at a living wage focusing on community needs and ecological restoration (Nersisyan & Wray, 2021). The circle of ‘Universal Basic Services’ refers to a form of social security in which all citizens receive unconditional access to a range of free public services provided by a government or public institution (Büchs, 2021). Lastly, the circle of ‘workplace democracy’ refers to involving in industrial decision-making those who must live with the social, health, and environmental consequences of production choices, meaning local communities and workers (Huber, 2019).

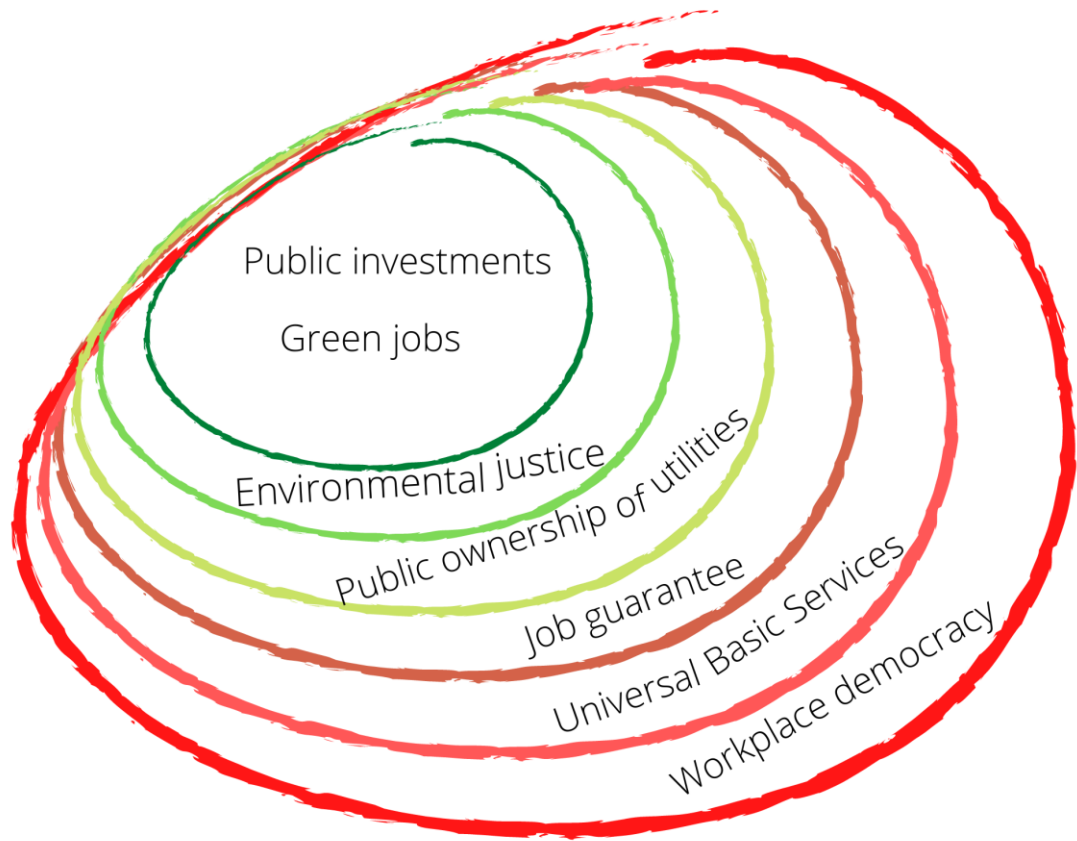


Figure 3. GND proposals visualized as expanding circles of red-green politics.

GND advocates argue that eco-social policies risk remaining only on paper if they are not woven into a successful political discourse. Indeed, the history of climate action is rife with failed attempts to legislate economic interventions because of little attention being paid to addressing political obstacles or building an enduring social base for further reforms (Wahlsten, 2020). On the contrary, in evaluating any climate policy the GND approach asks three interrelated questions (Lawrence, 2021): “Does this policy advance emissions reduction and justice? Does it build a political base for further action? Does it help erode and replace the hold of neoliberal ideology and subjectivity?” The GND envisions decarbonization as a decade-long project that cannot be achieved through a single act of legislation, but rather that it must be won through numerous reforms at every level of government (Parenti, 2015). It follows that whatever laws are passed today, they must reshape the political landscape to facilitate even more in the future.

Given its emphasis on grassroots people power and a critique of elites and corporations, it can be argued that the GND belongs to the left-populist genre of political rhetoric and mobilization. Bosworth (2020) makes the case that red-green populism markedly differs from the technocratic approaches to the green transition. Following Laclau (2005), populism can be defined as a way to construct the political discourse by establishing a frontier that divides society into two camps, appealing to the mobilisation of the ‘people’ against ‘the establishment’. GND advocates maintain that the first condition for building a red-green populism consists in indicating the economic and political elite as the culprits of inaction in the face of the climate crisis (Aronoff et al., 2019). This shift of the antagonistic frontier—which goes from the denunciation of individual behavior to the denunciation of the ruling classes and their failure to implement the necessary macro-social changes—is a first step towards the expansion of the GND discourse to the majority of citizens (Selwyn, 2021).

While the environmental movement has traditionally been characterised by an autonomist political outlook favouring the prefigurative politics of intentional communities (Malm, 2021a), the GND is animated by the strategy of wresting control of the State as a means of contesting capital’s control over investment, production, and distribution (Riofrancos, 2020). A strategy grounded in Poulantzas’ view (1978) of the State as relatively autonomous from the ruling class. Eckersley (2020) explains that governments will always have to find ways of managing the inherent tension between the imperatives of capital accumulation and popular legitimation to stay in power: this means maintaining economic growth while also addressing some of the ensuing harmful social and environmental consequences. But since the State is likely to exert its limited autonomy from capital only when pushed strongly enough by social movements (Wolf and Mueller, 2019), GND advocates propose a revitalization of the relationship between extra-parliamentary struggle (i.e. trade unions, climate justice activism, grassroots movements) and left-green politicians.

The GND also postulates that the State has a role in marrying the ‘social question’ that came to prominence at the beginning of the 20th century with the now

pressing 'environmental question'. This leads to the development of the concept of the 'eco-social State', which following Koch and Fritz (2014) refers to the responsibility of a government of addressing not only economic inequality through welfare regimes but also environmental risks. According to Laurent (2021), "the social-ecological State is an extension of the genius of the welfare state, its guiding principle is denaturalisation—or, put positively, socialisation. This entails transforming 'ecological uncertainty' into 'social risk', by means of public guarantees and insurance, to make the social consequences of the environmental crises of the 21st century as fair as possible and therefore, in principle, to mitigate their natural strength." Indeed, economic inequality and environmental risks generate a self-reinforcing loop since the exposure of a household to environmental risks is inversely proportional to its wealth (Chancel, 2020). According to the European Environmental Agency (2018), poor households tend to be more exposed to environmental contamination of various kinds, such as: outdoor and indoor air pollution, drinking water pollution, noise pollution, urban heat islands, lack of green spaces. But poor households' fragility arises also from the lack of means to cope with the consequences of extreme weather events (e.g., forest fires, river floods, and heat waves).

The vulnerability of the poor to the consequences of climate change can be exacerbated by austerity measures that weaken the ability of a State to provide support to those who most need it. A paradigmatic tale of the complex self-reinforcing feedback loop between austerity measures and environmental risks is provided by the difference in impacts that wildfires had in Sweden and Greece in the Summer of 2018: while in the former there was not even one reported death, the latter counted more than a hundred. Varoufakis (2018) offers the following analysis of the event: "Why did it happen? A dry winter had produced large quantities of parched forest and bush, which, on a day when temperatures reached 39°Celsius and winds gusted at 130 kilometers per hour, fueled the conflagration. But on this, our Black Monday, the weather conspired with the chronic failures of Greece's state and society to turn a wildfire into a lethal inferno. What role did austerity and Greece's ongoing Great Depression play in the ineffectiveness of the response? Fire departments, citizens' protection

agencies, ambulance services, and hospitals are terribly understaffed. While the fires would not have been stopped if we had three times the number of fire brigade workers and firefighting airplanes, a country suffering a decade-long diminution of its public services, its communities, and its morale can scarcely be expected to prepare itself well for a calamity made worse by climate change.”

While GND advocates maintain that ambitious climate change mitigation requires a direct involvement of the State in coordinating and financing the transformation of the infrastructural and productive system, this discourse does not question the compatibility of economic growth and environmental sustainability. For instance, while the GND House Resolution presented in 2019 to the US Congress does not explicitly mention economic growth as a policy objective, the idea is implicit in the text given its goals to “spur economic development” and “to grow domestic manufacturing”. On the other side of the Atlantic Ocean, the President of the European Commission, touted the European Green Deal as “Europe's new growth strategy” (von der Leyen, 2019). Reviewing policy briefs, scholarly articles, and op-eds making the case for a GND (e.g. Aldana Cohen, 2017; Pollin, 2018; Pettifor, 2018), the ‘green growth’ hypothesis—which asserts the possibility of absolutely decoupling GDP growth from environmental impacts—features prominently. However, the scientific evidence presented in the IPCC Sixth Assessment Report (2022: Ch.5 p.15) against the plausibility of decoupling is compelling: “Worldwide trends reveal that at best only relative decoupling (resource use grows at a slower pace than GDP) was the norm during the twentieth century, while absolute decoupling (when material use declines as GDP grows) is rare, observed only during recessions or periods of low or no economic growth. Recent trends in OECD countries demonstrate the potential for absolute decoupling of economic growth not only from territorial but also from consumption-based emissions, albeit at scales insufficient for mitigation pathways.” Hence, the GND discourse needs to be critically reappraised in its feasibility in the context of a departure away from a growth-based economy. Such reappraisal pertains both its economic and political feasibility.

Degrowth

The IPCC's stance against the 'green growth' hypothesis is substantiated by a growing body of scientific studies. For example, Hickel & Kallis (2020) maintain that there is no empirical evidence that absolute decoupling from resource use can be achieved on a global scale against a background of continued economic growth and that absolute decoupling from carbon emissions is highly unlikely to be achieved at a rate rapid enough to prevent global heating over 1.5 or 2 °C degrees, even under optimistic policy conditions. Similarly, Haberl et al. (2020) synthesize the evidence emerging from 835 peer-reviewed articles and find that—while relative decoupling is frequent for material use as well as greenhouse gas emissions—large, rapid, absolute reductions of resource use and greenhouse gas emissions cannot be achieved through observed decoupling rates. Their findings point to an important aspect of the debate surrounding 'green growth': the success of a decoupling strategy should be assessed in relation to specific environmental targets, rather than only in terms of abstract elasticities between GDP and resource/energy use. While relative decoupling refers to a decline in the resource/energy intensity per unit of economic output, absolute decoupling refers to a resource/energy use decline in absolute terms while economic output rise. Decoupling can be considered 'sufficient' if resource/energy use declines fast enough to reach sustainable levels. In the case of climate change, emissions would need to decline fast enough to keep global warming to 1.5 °C degrees, or well under 2 degrees, in line with the Paris Agreement.

According to Parrique et al. (2019), there are seven reasons to be skeptical of achieving sufficient decoupling between GDP and resource/energy use:

1. When a natural resource is extracted, the cheapest sources are generally used first. The extraction from the remaining sources tends to be more difficult and more intensive, and entails more environmental degradation per unit of extracted resource (Bonaiuti, 2018).

2. Efficiency increases are often partially or completely offset by a new allocation of resources and money saved towards an increase in the same type of consumption, the so-called 'rebound effect' (Alcott, 2008).
3. Technological solutions to an environmental problem can create new ones and/or worsen others (Van den Bergh et al., 2015). For example, the production of private electric cars puts pressure on the resources of lithium, copper, and cobalt.
4. The service economy can exist only in addition to the material economy, not in its place. Services have an ecological footprint that often adds to that of goods, rather than replacing them (Özpolat, 2021).
5. Recycling rates are currently low and only slowly increasing, and recycling processes generally still require a significant amount of energy and raw materials. But above all, recycling is strictly limited in its possibilities of providing the resources for an expanding material economy (Hobson, 2021).
6. Technological progress is not oriented to those factors of production that are relevant to ecological sustainability and does not lead to the type of innovation that reduces environmental impacts (Arne Heyen et al., 2017).
7. What has been observed and called decoupling in some local cases has generally been only an apparent decoupling, mainly due to the externalization of the environmental impact from high-consumption countries to low-consumption countries through international trade (Martínez-Alier, 2012).

Most of the research on the limits of decoupling and criticisms towards the 'green growth' hypothesis since the 2010s has fed into the theory of degrowth. According to Hickel (2021), degrowth can be defined as "a planned reduction of energy and resource use designed to bring the economy back into balance with the living world in a way that reduces inequality and improves human well-being." Degrowth is a burgeoning field of academic research: overall 510 peer-reviewed articles have been published since 2007, with 70 of them just in 2020 and 80 in 2021. Also policy briefings and reports published by international institutions have started mentioning degrowth as a viable and necessary strategy.

For example, in its latest report (2019) the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services indicated, as the main recommendation to stop the ongoing mass extinction process, to abandon the fixation with GDP growth. The European Environmental Agency (Strand et al., 2021) in the report *Growth without economic growth* writes that the great acceleration that is underway with respect to biodiversity loss, climate change, pollution, and loss of natural capital is closely linked to economic growth and that an absolute decoupling of GDP from the consumption of resources may not be possible. Degrowth is also mentioned in the recently published IPCC Sixth Assessment Report (2022) where it is presented as a strategy for facilitating the attainment of the Sustainable Development Goals (SDGs) by prioritising redistribution rather than GDP growth. In turn, the SDGs align with degrowth on specific policy proposals, such as universal basic income (SDGs 1 and 10), work-sharing to guarantee full employment (SDGs 8 and 10), and shifting taxation burdens from income to resource and energy extraction (SDGs 8 and 12).

The authors of the IPCC's Sixth Assessment Report (2022) characterize degrowth as using "precautionary principle-rooted arguments with the aim of intentionally decreasing both GDP and coupled greenhouse gas emissions". This definition is, however, only partially correct. In fact, degrowth is not about reducing GDP, but rather about reducing the consumption of energy and natural resources. From an ecological point of view, this is what matters. However, it is equally important to be clear about the fact that this reduction would most likely lead to a decline in GDP itself and that we must prepare to manage this event in the best possible way. However degrowth is a very different thing than a recession for a variety of reasons. First of all, degrowth is a planned and coherent policy to reduce the ecological impact, reduce inequalities, and improve the well-being of citizens (Hickel, 2021). Recessions are not planned and do not aim for any of these results. They are not even intended to reduce the ecological impact, although in some cases this is a by-product. Degrowth also postulates that it is easier to achieve decarbonization with slower economic growth. This is because the rate of carbon emissions in an economy is equal to the rate of change of output multiplied by the rate of change of carbon intensity. Indeed, the empirical

evidence demonstrates that to date renewable energy sources have not substituted fossil fuels fast enough, but are rather have been added on top: instead of an energy *transition* the world is witnessing an energy *addition* (Bonneuil & Fressoz, 2016) because the energy system at the global level is growing at a faster rate than renewables are able to compensate for. Essentially, it is a scale problem.

In light of the above considerations, it appears that degrowth could be an essential element for successfully achieving rapid climate change mitigation. For instance, Keyßer and Lenzen (2021) claim that degrowth scenarios minimize many key risks with respect to feasibility and sustainability when compared to the pathways proposed by technological solutions, such as the large-scale removal of carbon dioxide from atmosphere and its underground storage. Similarly, Hickel et al. (2021) support the thesis that post-growth approaches can make it easier to achieve rapid mitigation by reducing aggregate energy use and should be explored by climate modelers. Furthermore, 11,258 scientists from 153 different countries recently signed a warning (Ripple et al., 2019) in which they specified that the goal of climate change mitigation policies must be to move away from GDP growth and towards supporting ecosystems and improving human well-being, giving priority to basic needs and reducing inequalities.

Research questions

There has been to date very little debate over whether and how the GND and degrowth discourses could be combined. In the present thesis I intend to investigate the compatibility of these two discourses in a framework I term 'GND without growth': a rapid decarbonization plan that neither pursues economic growth as a policy objective nor depends on it for its financing and that holds environmental justice at its centre. My interest in exploring the idea of a 'GND without growth' rests with the assumption that it can act as a unifying framework for grassroots movements that fight for social and environmental justice. My perception is that more ink has so far been spilled by supporters of each one of these camps in attacking the other rather than focusing on possible synergies. Given that the compatibility of a GND with degrowth is a topic that has never been researched before, the questions surrounding it are arguably numerous. Hence, in this thesis I prioritize the questions that I find pivotal to test the plausibility of the 'GND without growth' framework and then suggest further research questions in the final chapter of the thesis. The axes on which I develop my research are three and they focus respectively on the policy, economic, and political dimensions of the 'GND without growth' framework. It should be noted that these three streams of research are tightly interwoven and, therefore, the research presented on each question builds on the findings arising from the others. Here below are the three research questions I intend to address in the thesis:

1. What are the main points of convergence and friction between the GND and degrowth discourses for rapid decarbonization at the national level?
2. Is it possible for a country to finance a GND in a zero-growth economy?
3. What possibilities are there for a 'GND without growth' to take root in legislative bodies such as the European Parliament?

To address the first research question, in chapter 2 I conduct a comparative literature review of scholarly papers, policy reports, and op-eds of the GND and degrowth discourses with the aim of investigating similarities and differences between them. Instead of seeing the GND and degrowth as antagonistic and trying to prove which one is right and which wrong, I take the approach of assessing the strengths and weaknesses of each in order to identify possible synergies, while recognizing tensions. By looking at the policy proposals presented by advocates of these two discourses, I test the overlaps and possible synergies that can result in the elaboration of a common strategy.

To address the second research question, in chapter 3 I shift the focus of the analysis towards the fiscal feasibility of implementing a GND in the context of a non-growing economy. This research question is particularly urgent since historically public investments in infrastructural development and welfare provisioning have relied on GDP growth, either in the form of taxation of economic activities or of borrowing from private investors at an interest. In recent years debates about the fiscal space available to monetarily sovereign governments—especially within the school of thought of Modern Monetary Theory—have revitalized a debate that is at the heart of the GND discourse, meaning the ability of a government to shape industrial policies outside the mechanisms of public-private partnerships.

To address the third research question, in chapter 4 I focus on investigating the plausibility of alliances across political parties on radical climate change mitigation strategies in the European Parliament. The central focus of my analysis is on the points of agreement and disagreement of Members of the European Parliament that characterize the ‘GND without growth’ discourse, such as environmental justice, the social and ecological desirability of economic growth, the role of the private and public sectors in the green transition, and the policies needed for rapid decarbonization. By investigating these facets of the debate rather than focusing on ideological stances, my aim is to understand the variable geometry of alliances for advancing the ‘GND without growth’ discourse. While chapter 2 has a clear national dimension (i.e. policy-making in Italy),

chapter 4 focuses on the EU as the democratic locus for ambitious climate legislation. The reason for this change of scale in my analysis rests with the fact that debates within the European Parliament on the GND are more advanced than what is happening in most (if not all) national parliaments in the EU. A GND in the EU would require both international and national regulatory interventions and policies, hence the ideas that I discuss in chapters 3 and 4 can provide valuable insights on the need of acting at various scales and the synergies and frictions arising from such dynamics.

Theoretical framework

While this dissertation is a compilation of three chapters that can be read independently of one another, there is a common conceptual framework that I describe in this section. The combined perspectives of ecological economics and environmental politics (Figure 4) allow analysis of the multiple factors at play in the 'GND without growth' concept at the heart of the thesis.

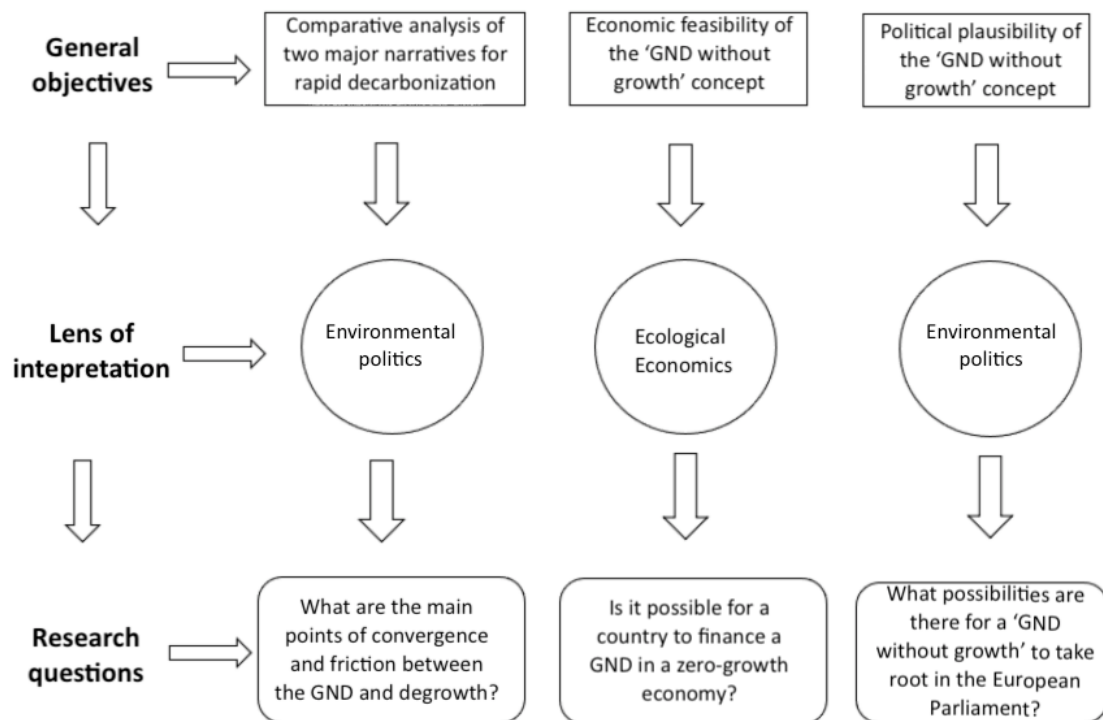


Figure 4. Theoretical framework for the central chapters of the thesis.

Ecological Economics

Ecological economics is a transdisciplinary field that aims to improve and expand economic theory to integrate the earth's natural systems, but also cultural and spiritual values, ecosystems' health, and human and animal well-being. In ecological economics the economy is seen as a sub-system of society, meaning that the economy is embedded in a structure of property rights, in a social distribution of power and income, and in a hierarchical division according to social classes. Society, in turn, is a sub-system of the biosphere (Figure 5). Ecological economists (Norgaard, 1990) dispute the view expressed in the 1960s

by resource economists that since natural resources were cheap, they must be abundant. At the centre of the analysis elaborated by ecological economics there is the hypothesis that markets are myopic, that they discount the future, and that they cannot foresee approaching limits of sources or sinks. Ecological economists sympathize with attempts at internalizing externalities into the price system, but they deny that there exists a set of ecologically correct prices that can fully integrate biogeochemical cycles into market transactions. However, environmental policies cannot be based solely on ecological analysis (e.g., on carrying capacity guidelines) either. Given the shortcomings of both economic and ecological rationalities, ecological economics places decisions in the political arena (Spash, 1999).

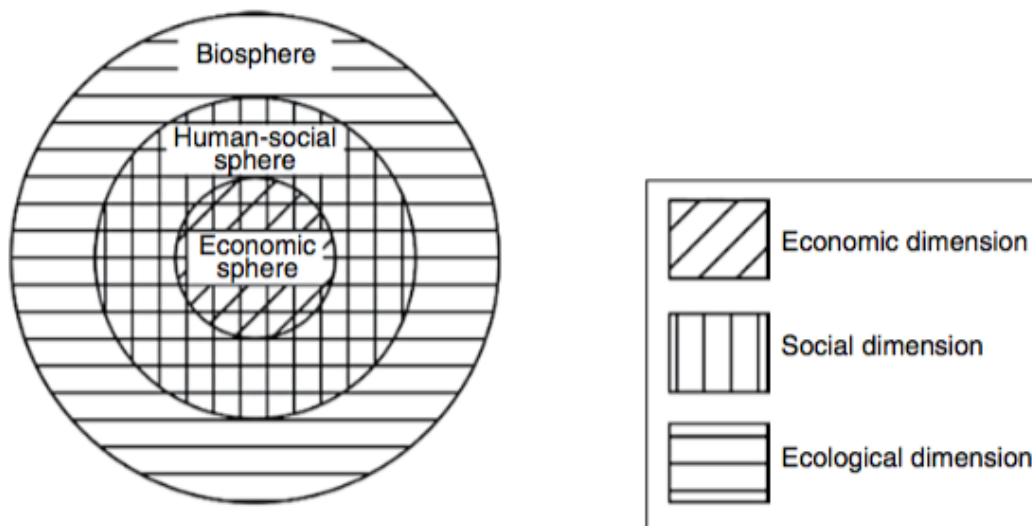


Figure 5. The economy embedded in the institutions of human society and in the biosphere (Martínez-Alier & Muradian, 2015)

Ecological economics distinguishes between ‘weak’ and ‘strong’ sustainability. While the former is characterised by the hypothesis that human-made capital can substitute for natural capital, ecological economists espouse the thesis of strong sustainability that postulates that economic and environmental capital is complementary, but not interchangeable. Strong sustainability accepts that there are certain functions that the environment performs that cannot be substituted by human-made capital. Following this line of reasoning, ecological economists question the centrality of markets in solving environmental problems. This

critique extends to market-based environmental policy, such as carbon markets. Leonardi (2017) speaks of a “carbon trading dogma”: although climate change is configured as a market failure, it can nevertheless be effectively addressed only on the basis of further marketization. More than a rational solution, the application of market logic to global heating reveals itself to be an element of a broader “regime of truth” (Foucault, 1966) that literally makes any alternative unthinkable. In other words, carbon trading envisions that the creation of new markets exclusively dedicated to climate change can open up simultaneously a new wave of capital accumulation (McCarthy & Prudham, 2004).

One of the most recent research venues embraced by ecological economists and that is central to the research presented in this thesis can be defined ‘ecological macroeconomics’. This research stream centres on the idea that sustainability objectives involve the whole economy (e.g., taxation, trade, investments), and therefore environmental policies cannot be disentangled from macroeconomic ones. In practice, this means that monetary and fiscal policies, for example, must be redesigned and redefined in order to be instrumental in achieving sustainability objectives. Hence, the priorities of macroeconomic policies—which are assumed to be politically determined and not the result of technical considerations—can be redefined in order to achieve a better environmental performance at the national and international level. My research contributes to the discipline of ecological economics by engaging with the research topic of ‘macroeconomics without growth’ (Victor, 2008), which focuses on the interactions of key economic variables (e.g., inflation, unemployment, national income) in the context of green policy making in a non-growing economy. Specifically, I intend to broaden the scope of analysis of ‘macroeconomics without growth’ through insights provided by post-Keynesian economics.

The intersection of ecological economics with post-Keynesian economics can be particularly fruitful in overcoming their respective limitations. For instance, post-Keynesian economists have almost totally ignored resource and energy constraints in the tradition of maintaining capital accumulation and full employment. On the other hand, ecological economics is particularly weak on

macroeconomic issues and, if anything, has tended to use economic equilibrium theories that are inconsistent with some of its basic premises about systems functioning derived from ecology. Such considerations led Spash and Ryan (2012) to argue that a more heterodox macroeconomic approach, sharing basic methodological concerns between the two disciplines, would be a significant step forward. I intend to contribute to this debate by exploring the macroeconomics viability of a 'GND without growth' in Chapter 3 of the present thesis.

Environmental politics

According to Carter (2007), environmental politics designates an academic field of study focused on i) the study of political theories and ideas related to the environment; ii) the examination of the environmental stances of both mainstream political parties and environmental social movements; and iii) the analysis of public policy affecting the environment at multiple geo-political levels. Some ideological dichotomies are central to academic debates on environmental politics: Is the state or the market more effective in achieving environmental policy outcomes? Are centralised or decentralised political structures better at dealing with environmental problems? Should environmental activists pursue an evolutionary reform of the capitalist system or should they seek a radical break with it? Should grassroots environmental movements adopt conventional or unconventional forms of protest? Is collective action (through Green parties and pressure groups) or individual action (by changing lifestyles and green consumerism) more effective?

A topic of inquiry prominent in environmental politics is the interaction between economic inequality and environmental degradation. Three types of environmental inequality can be distinguished: i) inequalities in exposure to environmental degradation (e.g., tropical countries are more exposed to climate change than more temperate zones and wealthy neighborhoods in a city tend to register better air quality levels than poor ones often located close to industrial areas) (Taconet et al., 2020); ii) inequalities in contribution to pollution and greenhouse gas emissions (King & Harrington, 2018); and iii) inequalities

resulting from environmental policies (e.g., increase in the price of energy can hit the poor relatively more than the rich) (Markkanen & Anger-Kraavi, 2019). Traditionally, research has focused on between-countries environmental inequalities in line with the UNFCCC's principle of 'Common But Differentiated Responsibilities' acknowledging that while all States have shared obligation to address environmental destruction, they do not have equal responsibility with regard to environmental protection. Essentially, while Global North countries are responsible for the vast majority of 'excessive emissions', they are less likely than Global South countries to bear the brunt of the impacts from climate change. However, in recent years there has been a revived interest for research on within-countries environmental inequalities, meaning the degree of inequality in the average carbon footprint between social classes and their respective ability to cope with extreme-weather events.

This level of analysis is important since nowadays between-country and within-country inequalities contribute in the same proportion to overall carbon inequalities at the global level (Chancel & Piketty, 2015). Research on environmental inequalities is important also for the debate on policy making for rapid decarbonization. Firstly, inequality leads to a greater share of energy in a society being used for transportation (Oswald et al., 2021), a sector harder to decarbonise than the residential one. Secondly, inequality drives positional consumption that is ecologically damaging without contributing to overall well-being (Jackson, 2009). Thirdly, inequality insulates political and economic elites from the rest of the population and makes it more difficult to build a cross-class experience of environmental degradation and to devise appropriate responses (Diamond, 2011).

The issue of inequality informs the 'environmental justice' movement that focuses on addressing the unfair exposure of poor and marginalized communities to environmental harms (Keucheyan, 2016). Given that most of the environmental justice movements centre on struggles of peasant and indigenous communities in the Global South, with the present thesis I attempt to provide some critical insights on environmental inequalities in the Global North. While

social struggles in the Global South and the research work that investigates them are important for developing progressive socio-ecological policies, Huber (2019) questions how such struggles might build social power capable of challenging the decisions of governments in the Global North that often have a disproportionate weight in shaping decision making in international fora, such as the COPs (Huber, 2019). Following his critique, in Chapter 2 and 4 I intend to investigate how the environmental justice movement could think about a broader strategy able to build popular power in the Global North where the social group that bears the brunt of the ecological crisis is working class people fully engulfed within the commodity society rather than peasant and indigenous groups able to rely on alternative subsistence practices.

Methods

I am writing this thesis as a form of political engagement informed by what Martinez-Alier et al. (2011) call “activism-led science”, meaning academic research that is at the service of society. Given the already visible impacts of climate change and the pressing need for the implementation of a ‘GND without growth’, I engage with what Wright (2013) calls an *emancipatory social science* able to simultaneously accomplish four tasks: “specifying the moral principles for judging social institutions; using these moral principles as the standards for diagnosis and critique of existing institutions; developing an account of viable alternatives in response to the critique; and proposing a theory of transformation for realizing those alternatives.” Emancipatory social science seeks to generate scientific knowledge relevant to the collective project of challenging various forms of human oppression and creating the conditions in which people can live flourishing lives.

My research has not been a solitary endeavour, but rather a collective one. The ideas presented in this thesis are the result of 4 years of engagement with climate justice activists in various countries around the world. Beyond the ideas that were formulated through constant exchanges with grassroots movements, my engagement with social actors outside of the university system is motivated by the need of escaping the oppression that researchers experience as a result of the neo-liberalization processes affecting academia (Ball, 2021). Emancipatory social science implies the emancipation of both the social groups involved in the research and the researchers. Working on the link between the ‘what’ and the ‘how’ of societal change should, therefore, be the objective of social science research that is at the service of society. From this perspective, rejecting the positivist approach that still permeates social science (Tallis, 2016) is a pivotal epistemological goal that I try to achieve with my research.

This dissertation is based on a mixed-methods approach, which entails that the researcher collects and analyzes both quantitative and qualitative data within

the same study (Baškarada & Koronios, 2018). Based on the taxonomy elaborated by Johnson et al. (2007), this dissertation can be categorized as ‘qualitatively driven design’ since the research study is, at its core, a qualitative study with quantitative data and methods added to supplement and improve the qualitative study by providing more complex answers to research questions. The choice of using a mixed-methods approach is motivated by two sets of considerations: i) narrow views of the world are often misleading, so approaching a subject from different perspectives or paradigms may help to gain a holistic or more truthful worldview (Creswell, 2009); ii) using more than one method can help to get a clearer picture of the social world and make for more adequate explanations (Teddlie & Tashakkori, 2011).

Chapters 2 and 3 of the thesis are premised upon an extensive review of the academic and non-academic literature focused on the GND and degrowth in order to explore synergies and frictions between these two discourses. Hart (2001: 13) defines an academic literature review as “the selection of available documents on the topic, which contain information, ideas, data and evidence written from a particular standpoint to fulfill certain aims or express certain views on the nature of the topic and how it is to be investigated, and the effective evaluation of these documents in relation to the research being carried out”. Importantly, a *critical* literature review differs from a merely *descriptive* one by focusing on analyzing and evaluating the claims contained in the texts under considerations. Analyzing the claims presented by the authors of the academic and non-academic texts being included in the literature review entails moving away from the text structure chosen by them and reorganizing the main ideas according to a ‘theme-based approach’ (Knopf, 2006). Such an approach consists in identifying the key themes spanning the literature in order to highlight the core debates. From the perspective of a ‘theme-based approach’, the researcher should classify the texts based on common concepts or problems. Subsequently, they should focus on finding similarities and differences between different approaches among all the authors reviewed. In reviewing the literature on the GND and degrowth I focused on a number of core themes, such as: industrial

policy, environmental justice, green growth, market-based environmental policy instruments, welfare and redistributive policies.

In chapter 4 of the thesis, I use Q methodology to investigate the viewpoints of a selected cohort of sitting Members of the European Parliament on the topics of the GND and degrowth. Q methodology is a mixed-method that performs a systematic study of subjective viewpoints. In recent years, Q methodology has seen increased application in ecological economics studies: since Barry and Proops' influential paper (1999), environmental and social scientists have used Q methodology to empirically determine different perspectives among key groups involved in decision-making regarding the management of natural resources and socio-ecological systems (e.g., Pike et al., 2015; Mukherjee et al., 2018; Crivits et al., 2010). Q methodology investigates associations between viewpoints, and not between individuals (McKeown & Thomas, 2013). In Q methodology studies, participants (and more precisely, participants' individual ranking of a set of opinions) are the equivalent of variables in a survey. Hence, the choice of participants is designed to attempt to ensure the widest possible breadth of opinions about the topic under investigation—and similarly to the choice of survey variables that attempts to ensure the comprehensiveness of factors potentially affecting a dependent variable.

Sample size and representativeness work differently in Q methodology and survey research. The objective of Q methodology is to describe the discourses existing within a particular group sampled for the study in question (Brown, 1980). The pool of opinions used in the study is intended to be representative, rather than the participants selected. The premise is that the systematic approach followed to identify opinions should lead to the identification of a representative set of statements about the topic in question, as researchers are not after representativeness of people, but probing representative discourses. Accordingly, researchers can draw a representative set of differing discourses from a small, non-representative number of people through purposive sampling, as long as participants have diverse opinions.

The number of participants in Q studies is usually small, with the typical range being 30–60 (Brown, 1980), but such sizes are, in fact, relatively big if one considers that this is equivalent to the number of independent variables tested in, for example, a regression with a survey. The criterion of selection is that participants have diverse and well-informed viewpoints on the issue under investigation (Robbins & Krueger, 2000). The premise of Q methodology is that there is a finite number of viewpoints/discourses on any given matter, and so a researcher does not need a large number of participants in order to capture the whole range of viewpoints, but rather a knowledgeable and diverse set of participants. As representativeness in Q methodology concerns the statements (Q-set) and not the type and number of individuals interviewed, the objective is to get a representative set of opinions, and then a small set of knowledgeable people with diverse views on these opinions, from which one can derive principal discourses about the phenomenon at stake.

Q methodology allows respondents to give an integrated evaluation of topics (ranking one statement *in relation to* the other included in the study), rather than expressing one's level of agreement on each topic separately. This allows yielding-integrated discourses, as distinct from clusters of opinions/participants that a Principal Component/Cluster analysis would, for example. As the objective is not to interview a sample representative of a larger population, but a focused, yet varied set of people with well-informed, but different views, in order to capture the diversity in the universe of thoughts and opinions as much as possible, the use of non-probability, purposive sampling is adequate to select interviewees with a variety of opinions.

Q methodology was first adopted by William Stephenson for a study published in *Nature* in 1935. His new methodological approach challenged two long-standing heuristic notions in science (Robbins & Krueger, 2000): 1) subjectivity is immeasurable because it reflects a subconscious experience and 2) subjectivity reflects wealth, race, and gender attributes and is, therefore, measurable by conducting surveys of large datasets based on such traits. Stephenson postulated instead that subjectivity has a measurable internal structure. In Q methodology

subjectivity is the internal frame of reference one calls upon to make sense of the world around oneself. While a powerful tool, there are also limits to what one can infer from Q methodology studies. One can infer that the identity patterns identified reflect underlying common constellations of values and beliefs. They indicate individuals who share a common discourse, at a minimum, by those participants who are defining sorts (Robbins & Krueger, 2000). One can also develop propositions from comparing and contrasting factors. However, Q methodology cannot be used to make claims about the larger population because is not sample-based (Brown, 1980).

Chapter 2

A Green New Deal without growth?¹

Introduction

In this chapter I compare two master narratives on climate change mitigation that represent a break with traditional market-based environmental policy: the GND and degrowth. Both have gained visibility in academia in recent years, with the GND becoming commonplace in public debate. The idea of a GND has been discussed since 2007, but recently a coalition of grassroots environmental groups, progressive politicians, and policy think tanks in the United States has advanced a new formulation, inspired by FDR's New Deal, that led to House Resolution 109 (presented to the US Congress in February 2019). In the wake of these events, climate justice movements in Europe have also started embracing the GND platform. Degrowth in comparison is a (relatively new) field of academic research and advocacy, mobilised by grassroots movements as a framework for articulating social and environmental justice demands (Demaria et al., 2013). My premise here is that instead of seeing the GND and degrowth as antagonistic and trying to prove which one is right and which wrong (e.g. Pollin, 2018), it is more constructive to assess the strengths and weaknesses of each in order to identify possible synergies, while recognizing tensions.

A main source of friction between the two narratives is the question of economic growth. Some GND advocates maintain that investments in renewable energy will grow related activities, have spillover effects, and stimulate the economy (Pollin, 2018). Economic growth will then increase the revenues available for clean energy investment and accelerate its deployment. The degrowth argument

¹ This chapter is a modified version of the published paper *Mastini, R., Kallis, G., Hickel, J. (2021). A Green New Deal without growth?. Ecological Economics, 179, 106832.*

is instead that the slower the rate of economic growth, the easier it is to achieve emissions reductions. This is because the rate of change of carbon emissions is equal to the rate of change of output multiplied by the rate of change of carbon intensity. Relying on GDP growth to finance the deployment of renewable energy means increasing total energy demand, which makes emissions reductions more difficult to achieve.

Section 2 analyses the genesis and evolution of the GND and argues that its recent formulation marks a break from previous iterations, something that has received less attention than it should by ecological economists. Section 3 outlines the degrowth position in relation to climate breakdown and mitigation, responding to critiques, including by Pollin (2018), that degrowth has little to offer to these questions. Section 4 focuses on the question of growth in more detail and argues in favour of the degrowth diagnosis, but claims that degrowth could be compatible, under certain conditions, with a GND. Section 5 compares the two approaches, and identifies elements of synergy and tension, while exploring what a 'GND without growth' could look like.

Green New Deal

In this section, I trace the history of the Green New Deal. My interest is not historiographical and I do not provide this story as a mere background to the analysis that follows. Instead I provide a history because in this way ecological economists can appreciate better the progressive radicalization and increasing openness of GND to anti-growth and anti-capitalist ideas. Not much has been written before on the differences between GND 1.0 and 2.0 that I highlight here, and ecological economists would be excused to think that one is a continuation or reincarnation of the other. This history becomes essential for the argument I present in section 5 regarding potential convergences of GND and degrowth discourses.

Whereas the term 'Green New Deal' (GND) has appeared in academic and policy debates since at least the 1990s (Czeskleba-Dupont et al., 1994; Henderson &

Woolner, 2005), it first entered the mainstream in 2007 in a *New York Times* op-ed by Thomas Friedman. In the run-up to the 2008 U.S. presidential election, Friedman argued that the candidate able to put forward an ambitious and credible energy and environmental agenda would have a clear advantage (Friedman, 2007). He called the plan a GND, because like the original New Deal it would be a “broad range of programs and industrial projects to revitalize America” (Friedman, 2007). To nurture clean energy technologies to a point that they would really scale “would be a huge industrial project” that requires “government regulations and prices”. Friedman argued that the GND has the “potential to create a whole new clean power industry to spur our economy into the 21st century” (Friedman, 2007).

After the collapse of the Lehman Brothers in September 2008 (see Figure 1), many economists and policy-makers came to see in the GND a strategy for restarting the US economy (Hertsgaard, 2009). Barack Obama embraced the narrative of the GND (Kaufman, 2018) on the campaign trail, and in 2009 his administration approved the stimulus package *American Recovery and Reinvestment Act*. The total stimulus amounted to US\$976 billion, of which US\$117 billion was oriented towards energy efficiency and renewable energy (Barbier, 2016). Similarly, the think tank New Economics Foundation set out an ambitious plan for the United Kingdom to invest massively in decarbonising the economy and to deliver an economic stimulus in response to the financial crisis, an agenda presented in the report *A Green New Deal* (Elliott et al., 2008). The European Green Party was also among those calling for a GND in the EU to respond to the financial crisis.

With the financial crisis becoming a global economic recession, numerous governments and international institutions adopted the idea of adding energy efficiency and renewable energy investments to their countercyclical fiscal stimulus packages (Kapoor et al., 2011). The United Nations Environment Programme issued the policy brief *Global Green New Deal* in March 2009 (see Figure 1) to coordinate various national economic stimulus plans (UNEP, 2009). The report recommended an expenditure of 1% of GDP on green initiatives, but the G20 group overall spent only 0.8% of GDP (amounting in total to US\$513

billion) by the end of 2009 (Barbier, 2016). The only countries that met UNEP's investment target were South Korea (5%), China (3.1%), Saudi Arabia (1.7%), and Australia (1.3%) (Barbier, 2016).

However, in 2010 the global economic consensus turned from stimulus to austerity. The G20 meeting in Toronto in June 2010 marked a point of departure away from Keynesian economics, which had up to that point informed state responses to the global financial crisis (Blyth, 2015). Under the banner of "growth friendly fiscal consolidation" (G20, 2010), balanced budgets and deficit hysteria became the dogma of G20 governments and "talk of a Green New Deal withered on the vine" (Kaufman, 2018).

The GND discourse has lately come to the fore of American political debates in a new incarnation articulated by a coalition of grassroots movements (Sunrise Movement, Justice Democrats, and Democratic Socialists of America), progressive politicians (most notably, Congresswoman Alexandria Ocasio-Cortez), and think tanks (New Consensus and Data For Progress). In March 2019 Congresswoman Alexandria Ocasio-Cortez and Senator Ed Markey presented House Resolution 109 in the U.S. House of Representatives (see Figure 1). This is a non-binding resolution that cannot be considered for the legislative process. The preamble establishes that the GND should address a climate crisis and an economic one of wage stagnation and growing inequality. To address the former crisis, H.R. 109 sets the goal for the U.S. to achieve net-zero greenhouse gas emissions through a 10-year mobilization, but without specifying when the target should be reached. It also aims to decarbonize the transportation, agriculture, manufacturing, and infrastructure sectors "as much as is technologically feasible". This wording combined with the net-zero greenhouse gas emissions goal suggests that proponents are supportive of carbon dioxide removal, but without specifying with which negative emissions technologies. To address the latter crisis, H.R. 109 sets out numerous social objectives: creating high-quality union jobs and offering training for workers affected by the transition, expanding the welfare state by providing free health care and affordable housing to all citizens, and fostering environmental justice by

stopping current, preventing future, and repairing historic oppression of frontline and vulnerable communities.

This new incarnation of the GND bears a close resemblance to U.S. President Franklin D. Roosevelt's New Deal, which was a set of social and economic reforms that the federal government undertook between 1933 and 1936 in response to the Great Depression. The New Deal included landmark agencies and legislation that made it very popular among American citizens (Rauchway, 2008). In the 1930s, the U.S. also faced the Dust Bowl and to stop topsoil loss and *restore damaged landscapes* the *Civilian Conservation Corps – a public work relief program for unskilled manual labor – planted hundreds of millions of trees* (de Graaf, 2019). The New Deal also founded the federally-owned corporation Tennessee Valley Authority that provided electricity generation and economic development to the Tennessee Valley, a region particularly affected by the Great Depression and neglected by private utilities because of the high costs associated with the electrification of rural areas (Bruenig, 2019). Key features of the New Deal – such as public ownership of energy utilities, social and labour reforms, and a job guarantee – have come to characterize the GND narrative since 2018.

Like the New Deal, the GND vision articulated in H.R. 109 points to the need for an interventionist economic approach to decarbonization by placing strong emphasis on public investments, industrial policies, and indicative planning. This proposal can be traced back to the basic argument that the private sector cannot innovate without the public sector giving it purpose and direction (Mazzucato & McPherson, 2018). According to The Economist (2019) the new incarnation of the GND “is an outright rejection of the orthodox economic approach to climate change.” In this new GND framing, the climate emergency is not a market externality to be fixed through pricing, but rather it is part of a social crisis. Such crisis can be addressed only “by redistributing economic and political power” (The Economist, 2019). This marks a radical departure from the first incarnation of the GND. Indeed, as Galvin & Healy (2020) argue, the GND 1.0 adopted an “ecological modernization” approach, predominately focusing on investments in technological solutions, without sufficient regulation to forcibly reduce CO₂

emissions. While the GND 1.0 tried to harness capitalist investment for climate benefit mainly through R&D funding, mild subsidies, and pricing carbon, the GND 2.0 would use “the power of public investment and coordination to prioritize decarbonization at speed, scope, and scale” (Aronoff et al., 2019). The GND 2.0, furthermore, rejects the primacy of market-based environmental policy instruments that seek to address the market failure of externalities by incorporating the external cost of production or consumption activities through taxes or by creating property rights to establish a proxy market for the use of environmental services. Instead, the GND 2.0 embraces command-and-control environmental regulation that involves the government establishing the reduction of pollution levels and monitor the manner in which it is achieved.

While the GND 1.0 could be considered a technocratic exercise in devising top-down policy proposals for restarting the economy after the 2009 Financial Crisis by investing in green technology, the GND 2.0 depends on and sees itself as part of grassroots movement-building in the context of environmental justice struggles. Just as a historic wave of labor unrest in 1934-1937 ensured Roosevelt’s presidential election and pushed him to approve New Deal legislation in his first 100 days in office (Rauchway, 2008), similarly frontline and vulnerable communities, which the harms caused by climate change and pollution have been dumped on, and young environmentally-aware citizens could represent the constituencies from which support for the GND could come (Wallace-Wells, 2019).

The strong effect that H.R. 109 had on the GND narrative is epitomized by the fact that U.S. Senator Bernie Sanders published a GND plan (Sanders, 2019) along similar lines during the 2020 Democratic Party presidential primaries. But unlike H.R. 109, Sanders’ plan includes a ban on imports and exports of oil and gas, a ban on mountaintop mining and fracking, and a moratorium on permits to drill on public lands. This amounts to including in the GND supply-side policies to directly restrict the extraction and distribution of fossil fuels, in line with the ‘keep it in the ground’ slogan of the climate justice movement (Battistoni & Riofrancos, 2019). Other innovative elements of Sanders’ plan are the objective

of exceeding the U.S. fair share of global emissions reductions in order to at least partly compensate for the standing climate debt that the U.S. has with the Global South. The plan proposes that the U.S. will reduce domestic emissions by at least 71% by 2030 and reduce emissions among less industrialized nations by 36% by 2030 by investing \$200 billion in the Green Climate Fund. All these are attributes that further contribute to the radicalism of the GND 2.0 discourse compared to its previous incarnation.



Figure 1. Time diagram with landmark events of the New Deal, of the GND 1.0, and of the GND 2.0.

Degrowth narratives about climate stabilization

In the context of counterculture movements in France in the late 90s, environmental and anti-capitalist activists started using the term 'décroissance' (degrowth). Since 2008 academics and activists have been organising biennial international conferences making degrowth a subject of scientific research with dozens of articles published in peer-reviewed journals. Environmental and social activists increasingly turn to degrowth as a framework for articulating their demands for a more ecologically sustainable and economically fair society (Demaria et al., 2013).

Degrowth is not a political platform, but rather an 'umbrella concept' that brings together a wide variety of ideas and social struggles. Unlike the GND narrative, it has not yet had a clear policy impact and no mainstream think tanks or political parties have endorsed it to date. However, some Members of the European Parliament (especially from green and social democratic parties) and NGO networks (such as, Friends of the Earth Europe, Greenpeace EU, the European Environmental Bureau) show increasing interest in degrowth. These and other organizations collaborated in organising the Post-Growth Conference at the European Parliament in September 2018. In the same month, 238 academics published an open letter calling on the European Commission to abandon growth as an economic objective in favour of stability and well-being (O'Neill et al. 2018).

Ecological economists have defined degrowth as an equitable downscaling of throughput, with a concomitant securing of wellbeing (Kallis et al., 2018). Despite the fact that GDP reduction is not an objective of degrowth, Schneider et al. (2010) write that "sustainable degrowth will involve a decrease in GDP as currently measured, because of a reduction in the large-scale, resource-intensive productive and consumptive activities that constitute a big portion of GDP. The degrowth hypothesis is that GDP can go down and nevertheless quality of life can improve.

From a degrowth perspective, the ecological emergency arising from the crossing of several planetary boundaries is a sign that growth cannot continue. One of the core hypotheses of degrowth is that GDP growth cannot be decoupled

from throughput at the scale needed to reduce resource use in line with planetary boundaries. As for emissions: while absolute decoupling of GDP from emissions is possible (and is already happening in high-income countries), it is not feasible to reduce emissions fast enough to respect the carbon budgets for 1.5°C and 2°C if the economy keeps growing (Hickel & Kallis, 2019). All the models projecting that climate stabilization can be achieved while global GDP grows at the normal rate of 2–3% per year rely heavily on negative emissions technologies that are unproven at scale (Anderson, 2015).

Degrowth postulates that it is easier to achieve decarbonization with slower economic growth than without. This is because the rate of carbon emissions in an economy is equal to the rate of change of output multiplied by the rate of change of carbon intensity. Looking at a group of 18 developed economies that have reduced their national emissions over the period 2005–2015, Le Quéré et al. (2019) found that – in addition to investments in renewables – reductions in energy demand deriving partly from lower GDP growth rates have been a key driver of reduced emissions. Conversely, carbon emissions reductions greater than 3–4% per year are very unlikely to be compatible with continued economic growth (Anderson & Bows-Larkin, 2013).

The degrowth literature also questions the suitability of renewable energy to fuel economic growth. GDP growth is driven by an increase in energy use derived from energy-dense sources that are abundant and cheap (Kallis & Sager, 2017). Consequently, to ensure economic growth in the long run it is necessary to increase energy supplies and/or the rate of energy efficiency (Warr & Ayres, 2010). However, the EROI (the ratio of the amount of usable energy delivered from a particular energy resource to the amount of usable energy used to obtain that energy resource) for renewable energy sources – between 10:1 and 20:1 – is lower than that of fossil fuels (Murphy & Hall, 2010). Cappellán-Pérez et al. (2018) simulate that if renewables increased from 15% to 50% by 2050 average EROI would drop to 3:1 when accounting for the energy required to extract and build the infrastructure, which is less than the 11:1 deemed necessary for a growing economy (Fizaine & Court, 2016).

Degrowth scholars reject also the assumption that the deployment of renewable energy is sufficient on its own to displace fossil fuels in energy production. Historically, new energy sources have added more energy without removing older sources: for instance the discovery of oil as an energy source has not replaced coal, but simply added to growing coal use (Fressoz & Bonneuil, 2013). Historical patterns suggest that past 'energy transitions' should be more accurately described as 'energy additions' (York & Bell, 2019). The average trend in many nations around the world over the past 50 years shows that each unit of electricity generated by non fossil-fuel sources displaced less than one-tenth of a unit of fossil-fuel-generated electricity (York, 2012). Hence, in the context of climate change mitigation, some degrowth advocates have proposed – along with a decline in energy consumption at the societal level – a cap on the total emissions that a country is allowed to generate (Kallis, 2015; Marcelllesi, 2012; Daly, 2013).

Degrowth advocates are not only concerned with climate change, but also with the increase in the material throughput of the economic system. Scaling up renewable energy production presents a problem in that the mineral intensity of renewable energy is higher than that of fossil fuels: producing 1 kWh of electricity from renewable energy requires 10 times more metals than from fossil fuels (Arnsperger & Bourg, 2017). Increasing the extraction of these minerals will further drive ecological breakdown, and in some cases limited resource availability may limit the expansion of renewable energy. For instance, with an annual growth of 10% in extraction rates, proven lithium reserves would become exhausted in 50 years (Bardi, 2014). Renewable energy can mitigate some environmental impacts, but only at the expense of exacerbating others. This leads to other social and ecological issues that are at the centre of degrowth research: environmental conflicts arising from struggles for the control of resources (Scheidel et al., 2020), local pollution where the mines are located (Li et al., 2014), and conflicts over land-use change (Capellán-Pérez et al., 2017).

In proposing a GND, Pollin (2018) claims that “a major weakness of the

degrowth literature is that, in concerning itself with broad themes, it gives very little detailed attention to developing an effective climate-stabilization project.” While degrowth scholars have elaborated numerous policy proposals (Cosme et al., 2017), it is true that they have not formulated specific proposals for emissions reductions; their contributions have generally focused on showing how GDP growth makes bending the curve of carbon emissions harder (Burton & Somerville, 2019). Kallis (2019) maintains that there is no shortage of technologies and policies for reducing emissions, but that they have not yet been put into practice because of the negative effects that they would have on economic growth. From a degrowth perspective, climate change is an issue that can be addressed only through a more systemic transformation of social and economic practices and institutions. But if we are to zero in on climate mitigation policies *stricto sensu*, degrowth scholars and activists have to date proposed carbon taxes, abolishing fossil fuel subsidies, divesting from the fossil fuel industry, rapidly switching to renewable energy, and adopting lifestyle changes that increase efficiency and reduce consumption (Stuart et al., 2019). I will discuss more in depth what the ecological transition should look like from a degrowth perspective in final section where I put forward some proposals for a ‘GND without growth’.

Degrowth is not only about government policies, it is also about value changes and changes in everyday modes of living. The degrowth scholarship emphasizes aspects of cultural transformation, epitomised by grassroots projects and communities practicing alternatives and prefigurative politics. Such initiatives, often mentioned also in the context of the commons or ‘post-capitalism’, include community gardens, alternative and solidarity economy networks, community currencies, time banks, open software collectives, and cohousing and eco-communes (Alexander, 2013). Such initiatives involve lower consumption and shorter production–consumption circuits based on the principle of sufficiency. They attempt to develop practices of production, consumption or exchange that provide social value outside the domain and logic of the GDP economy (Kallis, 2018).

Before I move to the tensions and synergies of the two approaches, let us

summarise in Table 1 the core elements of (different versions of) new deals and degrowth.

Table 1. Comparison of New Deal, GND 1.0, GND 2.0, and degrowth narratives.

	New Deal	GND 1.0	GND 2.0	Degrowth
Objectives	Employment, Stimulating aggregate demand	Stimulus-growth, Employment, Environmental standards,	Climate change mitigation, Employment, Social and environmental justice	Abolish pursuit of growth, Reduce all environmental pressures, Autonomy/limits, Social & environmental justice
Origins	Trade Unions, Presidency of Franklin D. Roosevelt, New Deal coalition	Keynesian economists, United Nations Environment Programme, Presidency of Barack Obama, G20	Coalition of U.S. red-green grassroots movements, New Consensus, Left wing of US Democratic party, UK Green Party, UK Labour Party, DiEM25	Grassroots environmental activists, Social and environmental science academics
Expression	Programs, Public work projects, Financial reforms and regulations	Opinion pieces, UNEP's policy brief 'Global Green New Deal', U.S. Green Party and European Greens' policy proposals, New Economics Foundation's 'A Green New Deal' report, G20's countercyclical green investments	Opinion pieces, U.S. House Resolution 109, Labour GND platform, Decarbonisation and Economic Strategy Bill 2017-19, Policy reports	Academic papers and books, Opinion pieces
Outcomes	Reform of Wall Street, Relief for farmers and unemployed, Social Security, Political power shifts to Democratic New Deal Coalition	G20's US\$513 billion green fiscal stimulus	Positioning of candidates in U.S. elections, Raise in public awareness (exemplified by Google Trends)	Biennial Degrowth International Conferences, Post-growth Conference at the European Parliament (2018), Academic discourse, Radicalization of environmental NGOs and activist groups
Countries prevalent	U.S.	U.S., China, South Korea, E.U.	U.S., U.K., E.U.	France, Spain, Italy, U.K.

Differences on the question of economic growth

A main source of friction between GND 2.0 and degrowth is the question of economic growth. Some proponents of the GND see growth as both the engine *and* a result of the ecological transition. While H.R. 109 does not explicitly mention economic growth as a policy objective, the idea is implicit in the text given its goals to “spur economic development” and “to grow domestic

manufacturing”. Three major policy experts associated with the GND debate in the U.S. argue that boosting working class wages and upgrading infrastructure would strengthen economic growth, therefore making H.R. 109 “fiscally responsible” (Talbot Zorn et al., 2019). This idea is problematic from a degrowth perspective because it fails to address the issue of growing energy and material flows.

Pollin’s (2018) advocacy of GND on the basis of criticizing degrowth is a good reference for this discussion. Pollin criticizes degrowth because “some categories of economic activity should now grow massively” in the context of the ecological transition. Degrowth scholars however responded to Pollin that they do not argue that certain activities, such as those deemed desirable from a socio-ecological perspective, should not expand (Burton & Somerville, 2018). While necessary sectors expand, less necessary sectors can be scaled down with a possible shrinking of GDP.

One question Pollin does not address is why a renewable energy transition requires *aggregate* growth. If the objective is to achieve specific kinds of goals, it makes more sense to invest in those directly, rather than to grow the whole economy indiscriminately and hope for a specific outcome. For instance, if the State increases expenditures in order to decarbonize the energy system, this could be used to directly increase renewable energy production (sustainability-oriented policy), rather than to boost aggregate demand (growth-oriented policy).

Pollin (2018) links GND to growth by proposing that GND should be funded with a set share of national GDP, specifically at 2% per annum. Growth is desirable, then, because “higher levels of GDP will correspondingly mean a higher level of investment being channeled into clean-energy projects” (Pollin, 2018). Granted, the higher GDP, the easier it may be to increase investments to renewables, easing competition with other public expenditures. Private investments also, driven by profit as they are, become harder in a context of contraction. But, at least in principle, an increasing proportion of a shrinking GDP could be directed

to a clean energy transition, if governments were to take greater control of the direction of investment by a socialization of strategic sectors. It is not clear, in other words, why a significant investment on a GND cannot be made within stagnant, or even contracting, economies.

Degrowth advocates insist on the importance of financing an energy transition without growth because from a degrowth perspective spurring economic growth in order to increase investment in clean sectors of the economy has undesirable, second order consequences, such as the expansion of dirty economic sectors. Growth is an integrated process and it is hard to imagine how to grow selectively the 'goods' while reducing the 'bads' (Kallis, 2019a). Furthermore, there are serious concerns whether the growth rates Pollin foresees can be sustained in the long-run, given signs of high-income countries entering a period of secular stagnation.

It is true though that certain financing strategies could make economic growth necessary for funding the GND, such as in the case of green bonds. When bonds have positive yields, governments are obliged to pay interest to bondholders, this requires growing tax revenues. The idea of using green bonds to fund the GND is premised on Richard Kahn's principle of the multiplier (1931): deficit spending should be used to increase growth in order to raise sufficient tax revenues to cover the debts. This is the Keynesian core of the GND narrative and, indeed, it relies on economic growth to avoid ballooning public debt. As Pettifor (2019) puts it, "the GND economy will not be debt-free, but its credit creation systems will be balanced by tax revenues gained from employment, used to repay loans to prevent the build-up of debt and deficits."

But it could be that it is problematic to resort to deficit spending for funding the GND. As Klein (2019) argues, "any credible GND needs a concrete plan for ensuring that the salaries from all the good green jobs it creates aren't immediately poured into high-consumer lifestyles that inadvertently end up increasing emissions [...]. This is the problem with what we might call the emerging 'climate Keynesianism': the post-World War II economic boom did

revive ailing economies, but it also kicked off suburban sprawl and set off a consumption tidal wave that would eventually be exported to every corner of the globe.” The ‘public expenditure-growth-tax’ model may not be compatible with ecological principles (Bailey, 2015).

This raises difficult questions about how to finance the energy transition in a degrowth scenario. I discuss three strategies for funding public investments without relying on economic growth. Firstly, public expenditures could be reallocated away from socially- and environmentally-harmful sectors (such as, armaments or fossil fuel subsidies) or gleaned from the expected positive effects of the ecological transition (such as, reduction in public health costs, unemployment benefits, defensive expenditures, and climate change adaptation).

Secondly, governments could tap into private and corporate savings by means of progressive taxation. For instance, Cox (2020) focuses on the richest third of US households, with tax rates graded by income within this group. 100% wealth taxes could be used for the top bracket, effectively instituting a wealth cap (Buch-Hansen & Koch, 2019). A more progressive tax system would have the added benefit of reducing inequality, reducing positional consumption (one of the main drivers of emissions) and increasing social well-being (Wilkinson & Pickett, 2010).

Thirdly, money creation could be decommodified and reorganized as a common good. A sovereign money system would entail debt-free money creation on the part of a country’s central bank with the aim of directly spending it into existence on any project decided by the government. Since sovereign money is created debt-free, it does not require economic growth for the repayment of accruing debt (Positive Money, 2018).

Aronoff et al. (2019) suggest a possible point of convergence between the degrowth and GND narratives when they argue that in the context of a “radical GND”, economic growth should not be a social objective. This is because “GDP growth has never been a great metric for the things we care about. The past forty

years show that it can continue without benefiting most people's well-being or trickling down. Contrary to the ideology of capitalism, materially intensive growth can't continue forever. We can't pretend ecological limits don't exist. And contrary to the arguments of clean technophiles, there's zero evidence that growth can be meaningfully 'decoupled' from resource use, or occur without environmental impact" (Aronoff et al., 2019). Hence, what high-income countries need is "a 'last stimulus' of green economic development in the short term to "jump off the growth treadmill, break with capital, and settle into a slower groove" (Aronoff et al., 2019). Here, unlike Pollin, there is an acknowledgement that building say solar panels and wind turbines might lead to the growth of certain economic sectors for a limited amount of time, but continuous and generalized economic growth should not be the objective.

A Green New Deal without growth?

Table 2 compares the more radical, recent version of GND 2.0 with degrowth, looking for possible synergies and complementarities (see Table 2). The idea here is of trying to think what a GND without growth, or a 'degrowth GND' could look like. Part of the thinking presented here has informed the campaign *Green New Deal for Europe* led by the pan-European political movement Democracy in Europe Movement 2025 and its report 'A Blueprint for Europe's Just Transition' (2019), to which I contributed. Basic tenets of such a GND include: public investment and asset ownership in the energy sector; policies for a just transition, including a job guarantee; decommodification and universal access to basic services; resource caps and policies to reduce resource use; environmental justice for resource-providing communities; and explicit social and economic policies to manage without growth. I present each below.

	GND 2.0	Degrowth	GND 2.0 => DG	DG => GND 2.0
Growth	Agnostic, Pro green growth	Against growth, Managing without growth	More resources for green investments when there is growth	Caution not to tie GND to delivery of growth, Preparation to manage without growth if need be
Climate stabilization	Decarbonization of the economy, Investments in renewable energy sources, Efficiency improvements	Investments in renewable energy and efficiency improvements, Decarbonization of the economy, Downscaling of throughput, Sufficiency	Public investment bank, Industrial policies, Socialisation of the energy sector	Reducing individual consumption, Minerals scarcity and land-use change from renewable energy deployment, Climate change is not the only problem with growth
Policies	Massive public investments, Just Transition, Job Guarantee, Expansion of the welfare state	Work-sharing, Basic and maximum income, Green tax reform, Environmental caps and bans, Universal Basic Services	Emphasis on public intervention and investment, Concrete measures for Just Transition	Policies to secure employment without growth, Policies to reduce aggregate economic activity, Legislation for longer-lasting products, Shift from private provisioning to public provisioning
Strategy	Policy change, Shift in public investment, Grassroots activism	Economic policy change, Democratic negotiation of legitimate needs, Self-limitation	Importance of using the leverage of public investment to steer towards a massive transformation of the economy	Prefigurative politics, Starting cultural change
Constituency	Progressive politicians, Social justice and environmental activists	Eco-communities, Red-green activists, Green-left politicians	Effecting regulatory change, Reaching out to mainstream discourse	Constructing a more radical discourse, Connecting global justice and ecological transition

Table 2. Differences between the GND and degrowth narratives and possible synergies between them.

A GND without growth should lower the profitability requirements of investments for supporting the energy transition. This, in turn, raises the issue of ownership of energy enterprises and assets. Recent GND proposals emphasise the need for public control of the energy sector (Pollin, 2019), which finds some echoes also in degrowth literature (Kunze & Becker, 2015). Indeed, in order for a growing share of public investment of a contracting economy to be directed to the clean energy transition, it is necessary for the government to take greater control of investments (Kallis, 2018). Investments in renewable energy will bring returns over much longer timeframes than traditional financial markets expect, and it is therefore necessary to rethink the ecology of investment: “there

is likely to be a substantially enhanced role for public sector's investments and asset ownership since its rates of return are typically lower than commercial ones, allowing longer investment horizons and less punishing requirements in terms of productivity" (Jackson, 2009). Social ownership of essential infrastructures can also lead to a more democratic control over the economy, arguably an essential element of both degrowth and the GND (Eskelinen, 2015). To this end, public development banks can play a crucial role in providing loans and subsidies for publicly- and community-owned enterprises (Marois, 2017).

The GND puts at centre a Just Transition framework. It envisions that workers in brown industries should be fully retrained to find new job opportunities in clean sectors. An essential element of this vision is that labour unions should be at the negotiating table to make sure that the transition is co-created and co-shaped (Newell & Mulvaney, 2013). Degrowth scholars agree with this approach, but they go one step further by calling "for a truly democratic, worker-controlled production system" (Barca, 2017). This would also entail a shift in income and welfare creation from industrial production to social and environmental reproduction: maintenance, recycling, repair, and restoration of environmental and infrastructural resources, as well as education, culture and care.

In terms of employment policies, the proposal for a job guarantee is another point of convergence between the GND and degrowth narratives. A job guarantee enables full employment despite contracting aggregate economic activity and it creates the possibility for people to earn a living outside the sphere of capital accumulation (Alcott, 2013; Unti, 2012). Work provided through the job guarantee can be channeled toward environmentally sustainable projects as it involves production for use rather than exchange. The job guarantee can be aimed at activities with high social value, such as care work, habitat restoration, and community services. A job guarantee can also be instrumental to the implementation of other degrowth measures, such as work-time reduction: the State could initiate a shorter working week and, in so doing, pressure private employers to follow suit.

H.R. 109 aims to provide high-quality health care, affordable housing, and economic security to all U.S. citizens: arguably, the expansion of the welfare state is one of the core principles of the GND narrative. Similarly, the concept of 'gratuity' plays a central role in degrowth (Ariès, 2018) and it amounts to removing essential social services from the market. The decommodification of essential services aims at transferring their allocation away from the sphere of the market and to the sphere of social rights (Gough, 2017). This ensures that people can live flourishing lives without needing high incomes to do so (Hickel, 2019b), undermining the notion that economic growth must be pursued in order to improve the lives of working people.

This approach has other benefits as well. For one, public services have a lower environmental impact than their private equivalents (Gough, 2017). Plus, reducing dependence on individual consumer goods mitigates competition for social status and, consequently, counteracts consumerism; less unequal societies tend to have lower levels of average emissions per capita (Wilkinson & Pickett, 2010). Policy proposals that provide for basic needs in a fair and sustainable way include: a progressive tariff structure for water and electricity, an enhanced and free public transport system, public housing with passive houses, and low-carbon public amenities (swimming pools, libraries, community gardens, etc.). A GND without growth could, for instance, involve the adoption of a policy of Universal Basic Services (Coote et al, 2019).

For the GND without growth to fit within rapidly-shrinking 1.5C and 2C carbon budgets, the low EROIs of renewable energy sources, and principles of international social justice, it entails that aggregate energy demand must be reduced, and this can be achieved with a gradually declining cap on energy use. Reductions in energy demand can best be achieved by reducing material throughput, since material extraction and consumption is a major driver of energy demand. This approach to reducing material throughput has the added benefit of releasing pressure on ecosystems (i.e., land-use change, biodiversity loss, etc.) (Grubler et al., 2018).

Policy proposals that go in this direction include legislation for longer-lasting products (banning planned obsolescence, introducing right to repair, mandatory recyclability, mandatory long-term warranties, etc.), and a shift from private provisioning to public provisioning (i.e., public transportation instead of private cars, public water instead of bottled water, etc.). Furthermore, a GND without growth must be cognizant of the social and ecological impacts of the material extraction required for the clean energy transition, and of the fact that this extraction will largely happen in global South communities (Riofrancos, 2019). Replacing a rapacious fossil-fuel industry with an equally predatory renewables industry is not in line with the principles of global justice (Ajl, 2018). Supply chain justice should be at the forefront of the energy transition to ensure that the materials required are handled with commitment to social and environmental justice in the rest of the world.

Reducing energy and material throughput will most likely end up slowing down GDP growth and destabilizing institutions that require and depend on growth. A GND without growth must pre-empt these problems by adopting policies for 'managing without growth' (Victor, 2008). Such policies can, for instance, include work-time reduction to facilitate work-sharing (Kallis et al., 2013), wealth redistribution through income and wealth caps (Buch-Hansen & Koch, 2019), green tax reform (Cattaneo & Vansintjan, 2016), and environmental caps (Mastini & Rijnhout, 2018).

Having chartered the possibilities of a GND without growth, I should recognize that there are also tensions between GND and degrowth visions, that some may find irreconcilable. As a reviewer to this paper noted, the main problem that makes the two proposals difficult to bridge is not just growth and finance, but differences in terms of the degree of structural change involved in each proposal and their underlying values/ideology. If one pushes the degrowth argument to its logical conclusion, given the dependence of capitalism on growth, a degrowth transition cannot be achieved within capitalism. Likewise, if one takes seriously degrowth's arguments about the scale of the necessary energy and resource use reductions, and for paying reparations and ecological debts to exploited regions,

as well as avoiding further injustices in the future, this is very likely to include a dramatic reduction in material standards in high-income parts of the world. Many in the degrowth camp have advocated for a more radical restructuring of social organization in the mold of transition towns, low-impact living, ecoregions with minimal trade, etc. This vision obviously chokes with the more statist spirit of a GND, with its emphasis on technology, big infrastructures and large flows of money, and on jobs and salaries. While the GND is quite a radical policy agenda, it does not go as far as challenging capitalism, but rather thinking of how to reform capitalism from within. And its emphasis on top-down action, even if movement mobilized, does not sit necessarily easily with degrowth's emphasis on bottom-up actions and pre-figurative, grassroots politics.

On the other hand, one should recognize that these are also differences and tensions that the degrowth movement faces internally, with a tension between reformist and state-based approaches and more 'socialist utopian' vision around eco-regions and a radically altered, non-capitalist future (Kallis, 2018). D'Alisa and Kallis (2019) try to articulate a new understanding of the state for the degrowth movement, going beyond top-bottom or politics-grassroots dichotomies. Based on Gramsci's theory of the state they argue that policies can be understood as the culmination of movement demands building upon embodied everyday, grassroots practices. This echoes André Gorz's concept of "revolutionary reforms", which the degrowth movement has mobilized: reforms that, if they were to be implemented, would require the very contours of the system to change radically to accommodate them (Kallis, 2018).

The GND from this perspective can be understood as a potentially revolutionary reform. It is a contested concept, it is a battlefield, and its meaning and ambition will be the result of the struggle waged by social movements (Riofrancos, 2019). Therefore, climate justice and degrowth activists should neither accept it uncritically nor reject it, but rather hijack it towards more radical positions (Wolf and Mueller, 2019). Like its namesake before it, the GND is a social compromise: it is the response to decades of environmentally conscious class struggle. Hence, climate justice and degrowth activists need to hold two contradictory thoughts at

once. First, that “as the most promising piece of social and environmental legislation the GND is worth fighting for” (Heron, 2019). Second, that if it were to be watered down (the way that the European Green Deal has been, for instance) it might just result in new rounds of primitive accumulation and commodification of nature (McCarthy, 2015).

Conclusions

The latest articulation of the GND narrative represents a valuable alternative to traditional market-based climate policy. It posits the importance of public investments for financing the energy transition, of industrial policies to lead the decarbonisation of the economy, of the socialisation of the energy sector to allow longer investment horizons, and of the expansion of the welfare state to provide social protection to citizens in the context of heightened environmental vulnerability and contraction of aggregate economic activity. Furthermore, the GND in its recent reincarnation postulates the adoption of the Just Transition framework and of a Job Guarantee scheme for retraining and employing workers displaced from brown sectors.

All these proposals, I argued in this chapter, are coherent with the degrowth narrative. To be effective, however, the GND narrative must place at its centre the reduction of throughput to facilitate a rapid decarbonisation of the economy and to avoid environmental problem-shifting and further extractivism in the Global South. The combination of all these elements are essential for a ‘GND without growth’. Adopting the GND without growth approach, however, means taking a critical stance against the claim that GDP growth is necessary for funding the ecological transition. A GND without growth should not depend on GDP growth for its financing, but rather it should mobilize financial resources through the reallocation of public expenditures, the increase of marginal taxation on the top income brackets, and the public issuance of sovereign money. And just as economic growth would not be necessary to fund GND investments, so it

would not be necessary to increase human well-being and social equality as the adoption of degrowth policies (such as decommodification of basic services, work-sharing, and wealth redistribution) are more effective strategies for achieving these objectives.

While a degrowth society would be based on different social values and economic structures than the present ones, I believe that the transition towards degrowth is a dynamic one and the GND can provide a transitional strategy (Parrique, 2019). Hence, the GND is a discourse fit for the initial reforming phase, in which State intervention in the economy and top-down policies are needed, and I believe that there are openings for radicalising it towards a greater convergence with degrowth. Therefore, I agree with Pollin (2018) that one cannot wait for capitalism to end before we get serious about climate stabilization. This means that one should be ready to engage with 'revolutionary reforms' within the current system, reforms which when implemented, not only they may radically reduce carbon emissions, but also may stretch the limits of the very system. In our view, a GND without growth is such a revolutionary reform.

Chapter 3

How to pay for a Green New Deal without growth?²

Introduction

Climate change is undermining the ecological systems on which humans and all other forms of life depend. Mitigating it is crucial to preserve the conditions for life in terrestrial systems (IPCC, 2014). In recent years, a growing body of research (e.g. Mazzucato, 2014; Pollin, 2019; Pettifor, 2020) has pointed to the key role of the public sector in coordinating and financing the transition to a green economy. The problem with relying on traditional financial markets is that investment in renewable energy production, natural resource conservation, and ecosystem regeneration will bring returns over long timeframes. This approach may be unattractive to private investors seeking more immediate profits. Further, investment in ecosystem enhancement and climate adaptation might not realise any financial return, even though they protect vital ecosystem services for the future (Jackson, 2009). Nonetheless, the necessary investment in long-term infrastructure and public goods needs to be made, regardless of whether private financiers consider it worthwhile. This may mean relying on public sector investment and asset ownership. The public sector is often best placed to identify and protect long-term social assets, since it does not require the high rates of return typically demanded by commercial investors, thus allowing for longer investment horizons and less punishing requirements in terms of productivity (Aronoff et al., 2019).

In light of these considerations, climate justice movements around the globe have been calling for a GND: a heterogeneous package of policy proposals aimed at transforming national infrastructure and production systems within the ‘just transition’ framework. Estimates of the yearly cost of funding a GND vary

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considerably. Pollin (2018), for example, proposes investments amounting to 2% of annual GDP, Varoufakis (2019) proposes 5%, and Galvin and Healy (2020) estimate costs of up to 8%. Nonetheless, there is consensus that a GND would not be a one-off investment, but would need to be sustained for at least 10 to 15 years. Accordingly, in the context of the 2020 US presidential campaign, US Senator Bernie Sanders proposed a GND program estimated at \$16.3 trillion over 15 years, corresponding to 5.7% of US annual GDP.

While most policy and academic publications on the GND do not explicitly mention economic growth as a policy objective, the idea that a GND will spur economic development and boost wages is often implicit (e.g. Talbot Zorn et al., 2019). Pollin (2018) goes further, framing economic growth not only as an outcome of the GND, but also as its engine: that is, that the GND should be funded with a set share of national GDP. Growth is desirable, then, because higher levels of GDP will mean a higher level of investment being channeled into clean-energy projects. Previously, we proposed the idea of a ‘GND without growth’ (Mastini et al., 2021). An obvious problem here is that pursuing aggregate economic growth in order to increase investment in clean sectors of the economy may also stimulate an increase in ‘dirty’ sectors (Kallis, 2019). More importantly, empirical evidence indicates a strong coupling of economic activity with energy use, a trend that is unlikely to be broken even under high-efficiency conditions (Hickel & Kallis, 2020). This is a problem when it comes to climate mitigation, because more growth means more demand for energy than would otherwise be the case, which, in turn, makes rapid decarbonization more difficult to achieve (Hickel et al., 2021). In other words, growth may end up working against the core objectives of the GND.

The evidence for this outcome is now quite extensive. While no robust conclusion can be drawn on the direction of causality, a meta-analysis of 835 peer-reviewed journal articles conducted by Haberl et al. (2020) shows that energy use and GDP are strongly correlated. Since GDP growth entails an increase in total energy use, this, then, makes reducing the use of fossil fuels even more difficult to achieve (York & Bell, 2019). For instance, the IEA (2018) found

that between 2017 and 2018 global energy-related CO₂ emissions grew by 1.5% (from 32.6 to 33.1 GtCO₂) in spite of improvements in energy efficiency (-0.3 GtCO₂) and the deployment of more renewables (-0.2 GtCO₂). This is because global economic growth caused CO₂ emissions to increase by 1.3 GtCO₂ in this same period. By looking at a group of 18 developed economies that reduced their national emissions over the period 2005–2015, Le Quéré et al. (2019) found that, in addition to investments in renewables and energy efficiency, reductions in energy demand derived from lower GDP growth rates were a key driver of reduced emissions.

Additionally, and independent of views about the plausibility of green growth and absolute decoupling, the theory of secular stagnation posits that the attainment of economic growth in high-income countries is becoming increasingly difficult. Secular stagnation occurs when there is negligible or no economic growth in an economy in the long-term, in contrast to cyclical or short-term stagnation (Gordon, 2017; Vollrath, 2020). The core argument is that, in spite of technological innovation, high-income countries are unlikely to maintain acceptable growth rates because of population aging, growing inequality, stalling education achievement, and industrial delocalization (Dorling, 2020). A further reason is the fact that the boost in growth from internet and computerized technological advancement does not measure up to the boost created by the great inventions of the past, such as the assembly line production methods of Fordism (Godron, 2017, Burgess et al., 2021). Instead, Vollrath (2020) sees stagnation as a sign of success, with high-income economies stabilizing at high levels of income, as the result of a desirable reduction of fertility and a shift to less labour-intensive services, coupled with a satiation in consumption. Whether for good or bad, stagnation is a real prospect, which raises the question of how, then, could a GND be sustained in the long term, if the economy were not to grow.

I investigate this research question in the present paper. I ask how governments of high-income economies can finance a 'GND without growth'. In the second section, I discuss how governments can mobilize financial resources for a GND through increases in taxation rates and budget reallocations. While budget

reallocations may not alter by more than 1 or 2% of GDP without negatively impacting on welfare expenditures, taxation rates in many high-income countries could be substantially increased to potentially finance an ambitious GND. In the third section, I discuss the proposal put forward by Keynesian economists to resort to bond issues to increase public financial resources for allocation to a GND. The problem with bond issues, however, is that they must be repaid to investors with interest, meaning that the long-term sustainability of this strategy depends on economic growth. The issuing of bonds imposes a growth imperative that is problematic for the financial viability of a 'GND without growth'. Yet, governments, in coordination with national central banks, can adopt policies of debt monetization to defuse the growth imperative arising from an increase in the debt-to-GDP ratio. Many central banks have practiced this monetary strategy since the 2008 crisis, and it has covered most—if not all—public spending during the pandemic in 2020. In the fourth section, I discuss the risk of inflation arising from debt monetization and present questions for further research. In the fifth section, I substantiate our analysis by presenting an illustrative calculation of how Italy could combine the fiscal and monetary tools of an increase in taxation rates, budget reallocation, and debt monetization to finance a 'GND without growth'.

Fiscal policies: budget reallocation and tax increases

I first examine two funding sources that have the advantage of not causing increases in the public debt, namely: budget reallocations and taxation increases. Budget reallocations involve shifting public expenditures within the approved budget to meet a government's public policy objectives. Government expenditures can be divided into three main groups (Brady & Magazzino, 2019):

1. *Government consumption* of goods and services, such as road and infrastructure repairs, national defence, schools, healthcare, and government workers' salaries,

2. *Transfer payments*, such as pensions, unemployment benefits, veteran and civil service pensions, foreign aid, and subsidies to businesses,
3. *Interest payments* to the holders of government bonds.

Financing a GND would primarily entail increasing public investment in government consumption projects, such as electrifying the energy system, building renewable energy power plants, countering hydrogeological instability, and increasing a variety of defensive expenditures. However, there are limits to how much of the public budget can be reallocated, especially if dominated by transfer and interest payments (Forni et al., 2019). Specifically, cutting back the welfare state (which is composed of several types of transfer payments) to liberate fiscal resources for investment in the low-carbon transition is problematic, because the GND aims to address both ecological and social issues. Maintaining and even improving the welfare state is crucial to the GND framework to ensure that people have reliable access to essential goods and services during the transition. Its maintenance is required more than ever, in light of the ageing population in most OECD countries and of the increasing climate impacts that are affecting communities (Bailey, 2015).

The most obvious example of budget reallocation serving the objectives of a GND is the phase-out of environmentally harmful subsidies (a type of transfer payment) that should be redirected towards activities favourable to the green transition. In the context of the European Green Deal, this is the logic that led the European Parliament to vote to make it legally binding for all Member States to phase out fossil fuel subsidies by 2025, currently amounting to 0.5% of GDP of the European Union. Another public budget item that could be redirected to finance a GND is military expenditure (a form of 'government consumption'). Sanders (2020), for instance, included cuts to the US military budget of 10% in his GND proposal that would liberate 0.4% of GDP for reinvestment in the green transition. The scope of budget reallocations for financing a GND varies from country to country, making it difficult to assess. One reason for this is the wide variation from country to country of total government expenditure as a percentage of GDP: for example, among G20 nations this ratio ranges from 56%

in the case of France to 30% in the case of South Korea (IMF, 2011). Generally, we can assume that the higher the share of total government expenditure as a percentage of GDP, the easier it would be to find opportunities for reallocation.

The primary source of government revenue is represented by the taxation of individuals, companies, and consumption goods and services. According to World Bank data, the ratio of tax revenue to GDP varies widely, even among advanced economies. In 2020, it was 25% in the USA, 38% in Germany, reaching the highest level of 45% in France. The average tax intake as a share of GDP for OECD countries nowadays stands at 33%. It could be argued, therefore, that, if all OECD countries were to increase their ratio of tax revenue to GDP to equal—or to at least come closer to—that of France, a considerable amount of new public funding could be allocated to a GND. In OECD countries, on average, the tax intake as a share of GDP would increase by 12%, if equal to that currently in force in France. This result could be partly achieved by increasing the top marginal tax rates, since Piketty (2014) demonstrated that, in OECD countries, they are currently far from the highest levels imposed in the post-war period. Further, environmental taxation rates could be increased, even though they have always been very limited as a share of government revenue, amounting, for example, to just 5.9% in the EU (Eurostat, 2020). However, the phase-in of more ambitious carbon taxation policies could substantially increase the share of environmental taxation as a proportion of government revenues. Piketty (2018), for example, has designed a GND for the EU, amounting to 4% per year under which national governments agree to raise 4% of EU GDP through a harmonized corporate tax rate of 37%, an increased income tax rate for the top 1%, a new wealth tax for those with more than €1m in assets, and a CO₂ emissions tax of €30 per tonne.

To conclude, we can say that budget reallocations and increases in taxation could potentially finance an ambitious GND without an increase in the overall size of the economy. However, this would require taxation increases in many countries to levels unseen in their own historical record, getting closer to the share of GDP in some of the highest taxing countries.

Monetary policies: quantitative easing and debt monetization

If expenses exceed revenues, the only option available to governments is to run a budget deficit by borrowing money from private and/or institutional investors through sovereign bonds issues (Wray, 2015). Specifically, in order to finance a GND, a government could issue sovereign green bonds, which are functionally very similar to other sovereign bonds except that they are earmarked to exclusively fund projects related to the low-carbon transition (Gianfrate & Peri, 2019). Ever since Poland became the first country in the world to issue a sovereign green bond in December 2016, several countries have followed suit. Hence, a possible way of funding a GND would be to issue sovereign green bonds to be repaid with the revenues generated by green economic activities. In this way, a GND could still be financed by a set share of GDP, even though the national economy is shrinking. While this is possible in theory, a complication stems from the fact that GND investments are, in a sense, non-productive investments mostly focused on social care and ecological reparation. Investments in eco-system enhancement and climate adaptation might not bring any conventional financial returns, even though they are protecting vital ecosystem services for the future and may also be contributing to employment. Increasing socio-ecological resilience, then, may actually result in 'soaking up' income without increasing economic output (Jackson & Victor, 2011). In such a scenario, and if the brown parts of the economy were to shrink and the green parts could not sustain growth on their own, it is questionable whether there would be sufficient growth to pay back GND investments.

Public borrowing entails an increase in the level of public debt towards private and institutional investors who expect to be paid interest for holding the bond as well as the face value of the bond when it matures. In the long run, any government is concerned with reducing—or at least maintaining as constant—its debt-to-GDP ratio in order to decrease expenses arising from the servicing of its public debt (Cevik & Jalles, 2020). Toward this end, governments generally

seek to grow the GDP rather than to divert existing resources to reduce the debt. Governments rarely reduce the nominal value of their outstanding debts (Wray, 2015). Instead, they issue new debt to make repayments on maturing bonds and then issue additional bonds to cover the year's budget deficit. This means that the nominal value of government debt tends to grow over time. Hence, a government's preoccupation with the risk of a worsening debt-to-GDP ratio acts as a growth imperative (Positive Money, 2018; Blauwhof, 2012; Svartzman et al., 2020). As long as the economy grows at a faster pace than does public debt, the outstanding debt becomes smaller relative to GDP. Growth, therefore, makes the public debt less burdensome on the public budget. As Pettifor (2019) puts it: "the GND economy will not be debt-free, but its credit creation systems will be balanced by tax revenues gained from employment, used to repay loans to prevent the build-up of debt and deficits."

Financing a 'GND without growth' through deficit spending, even in part, requires that it be done in a way that does not put additional pressure on governments to sustain GDP growth. This can be accomplished through debt monetization, whereby a government borrows money from the central bank to finance public spending instead of selling bonds to private investors. In the period between 1950 and 1980, various forms of monetary financing formed an integral part of macroeconomic policy in several advanced economies (Ryan-Collins & Van Lerven, 2018). The historical evidence is clear that monetary financing was used not only during economic downturns, but also more routinely to support fiscal expansion and Keynesian full-employment policies (Mazzucato & Wray, 2015). Subsequently, since the financial crisis in 2008, the central banks of several OECD countries have been conducting quantitative easing (QE) programs. While QE is not strictly speaking a form of debt monetization, its impact on the sustainability of public debt has been the same. In the words of the former president of the Federal Reserve Bank of Dallas: "Through its QE program, the Fed is monetizing the debt of the US federal government and the math of this new exercise is readily transparent: the Fed will buy \$110 billion a month in treasuries, an amount that, annualized, represents the projected deficit of the federal government for next year. For the

next eight months, the nation's central bank will be monetizing the federal debt" (Fisher, 2010).

Recently, debt monetization has become an essential fiscal tool for governments dealing with the economic crisis triggered by the COVID-19 pandemic. As spending surged and tax revenues collapsed, governments worldwide issued an unprecedented volume of debt. The OECD estimated that total debt issuance by advanced economies came to \$18 trillion in 2020 (OECD, 2020). Overall, the central banks of OECD countries made purchases equivalent to more than half the net issuance of new debt in 2020. Hence, government deficits were financed without driving up interest rates, by having one branch of government—the central bank—buying the debt issued by another branch of government—the treasury. According to Tooze (2021), “it was a roundabout mechanism, but the net effect was that, in 2020, the central banks on both sides of the Atlantic were monetizing government debt on a gigantic scale.” In the case of the UK, there was a close one-to-one correlation between the government’s borrowing and the Bank of England’s additional debt purchases. When *The Financial Times* polled influential bond market actors in London at the end of 2020 about how they interpreted the Bank of England’s action since the beginning of the COVID-19 crisis, the overwhelming majority was convinced that the principal role of the central bank had been to do ‘fiscal QE’, that is, to absorb and monetize government debt (Stubbington & Giles, 2021).

In the course of 2020, the average advanced economy managed a discretionary fiscal expansion entirely through debt monetization of almost 8.5 percent of GDP (IMF, 2021a), a figure exceeding the upper boundary of estimates for the cost of financing a GND. While this sets an important historical precedent for monetary policy-making, it should be borne in mind that a GND is not a one-off investment, but rather a program sustained for a 10- to 15-year period. These considerations inevitably lead to an examination of inflationary tendencies potentially arising from a debt monetization effort on such a scale.

Debt monetization and the risk of inflation

When government deficits are financed through debt monetization, the outcome is an increase in the monetary base. A key difference with QE is that debt monetisation constitutes a form of 'helicopter money' insofar as the money created by the central bank flows directly into the real economy via government expenditures (Galí, 2020). With QE, by contrast, money is transmitted entirely through the financial sector, where it has either been saved or employed to sustain asset prices with little spillover into the real economy (as price inflation affects mostly financial assets and real estate). Therefore, the main concern about debt monetization is the risk of inflation: a general increase in the prices of goods and services. When the general price level rises, each unit of currency buys fewer goods and services; in other words, the purchasing power of money declines. Increased demand will, however, not cause inflation as long as it is met by an adequate increase in supply, i.e. GDP growth. While the inflation rate had remained at low levels in OECD countries in spite of QE programs until 2020, with an average inflation rate of 1.9% for the period 2008-2020, it increased substantially to 3.6% in 2021 (Figure 1). Such considerations raise questions about the inflationary potential of a 'GND without growth'. If a sizeable share of GND financing were to come from debt monetization and GDP growth were to stagnate, it is likely that the inflation rate would increase. While inflation can lighten the real burden of public and private debt—helping both institutional and individual debtors— it could also lead creditors to demand higher nominal returns for their investments and, consequently, result in a loss of income for workers if wages were not indexed to prices and if the same workers did not have adequate bargaining strength. Therefore, the distributive effects of inflation are largely uncertain and need to be considered carefully so as not to run the risk of making the GND financially detrimental for the majority of citizens.

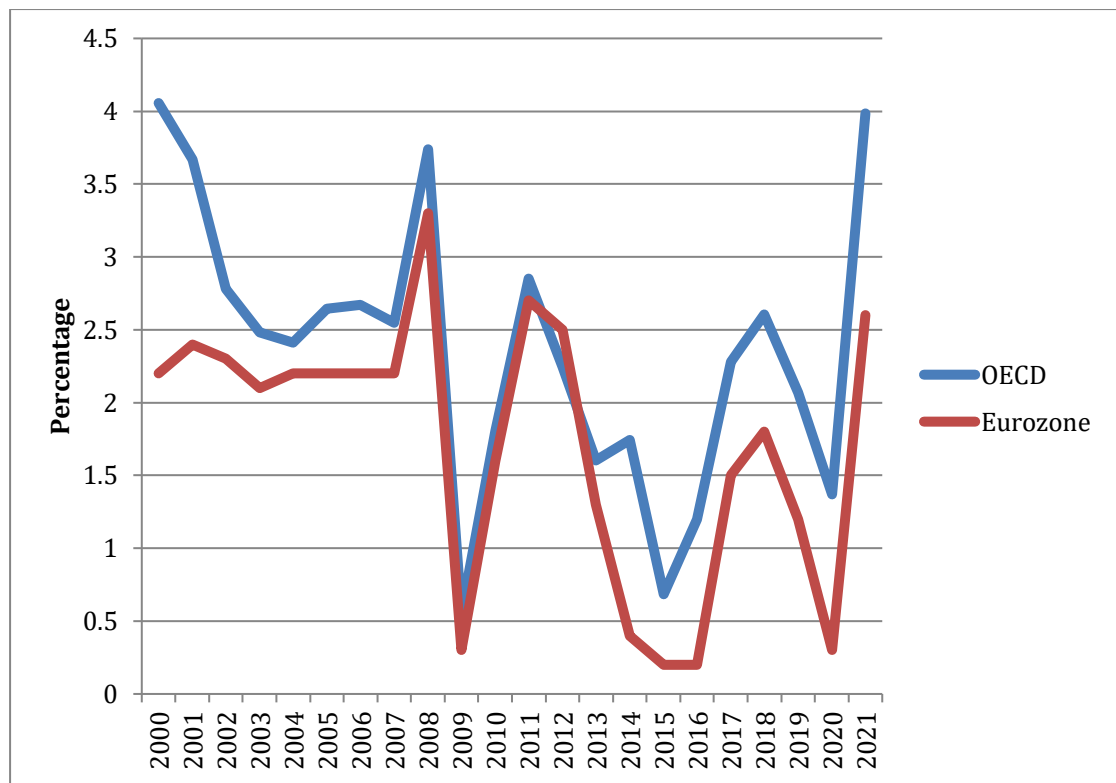


Figure 1. Inflation rates in OECD countries and in the Eurozone. Source: OECD data

Economists associated with Modern Monetary Theory (MMT) (e.g., Wray, 2015; Mitchell, 2019; Kelton, 2021) argue that, when demand exceeds supply, an increase in taxation rates would act as a brake on inflation. While public spending injects money into the economy, taxation withdraws money and can be useful to rebalance demand and supply. Hence, if financing a GND through debt monetization increases the inflation rate, then taxation is required in turn. This forces us to ask: if funding a GND through debt monetization requires taxation in order to control inflation, why not use taxation to fund the GND directly?

One benefit could be expediency. A GND needs to be implemented immediately to halve emissions by 2030 in line with the recommendations of the IPCC (2014). It may take time—and might not be possible—to build the political will to fund it through taxation, in the face of political and business forces that are likely to reject additional taxation. Financing a GND through debt monetization would allow governments to proceed more swiftly, and spend first while introducing deflationary policies and taxation, if needed, later. One might argue that it is easier to build political will to control inflation—for which there is broad

consensus—than it is to rely on taxation as a mechanism for funding a GND. On the other hand, it is an open question whether it would be easier to implement taxes later on to control inflation. Imagine a scenario where a government under fire for inflation also had to increase taxes. There are also important distributive questions. A reduced purchasing power, caused by inflation, affects everyone, not just those targeted by increased taxation. The poor may end up paying both by losing purchasing power due to inflation, and later on by austerity cuts to control spending and inflation, if the rich manage to stop tax increases that would harm their interests.

Consequently, research on changes to taxation for a ‘GND without growth’ requires consideration of the social and ecological impact of different taxes. The literature on degrowth does not discuss the macroeconomic aspects of taxation as much as its distributional and ecological effects. Degrowth proposes taxes on very high incomes and wealth. As Hickel (2021) puts it, “it is irrational—and dangerous—to continue supporting an over-consuming class in the middle of a climate emergency. We cannot allow them to appropriate energy so vastly beyond what anyone could reasonably need”. Limiting the purchasing power of the rich by way of taxes is also the single most effective strategy for reducing emissions, as the rich and super-rich are responsible for most of global emissions in excess of planetary boundaries (Otto et al., 2019; Gore et al., 2021). Consumption, both in general and of specific resources, can be further limited through additional eco-taxes and absolute caps, bans on advertising and other measures (e.g. Cosme et al., 2017).

At the same time, it is true that the rich spend proportionally less of their income and save more. While income taxes on the richest might be very effective for reducing emissions, they might be very ineffective for reducing overall consumption and, hence, inflation. More importantly, many degrowth scholars call for a shift of taxation away from labor income (except very high incomes), towards energy and resources (Kallis et al., 2012; Parrique, 2019). This clearly would have ecological benefits, although the impact on inflation is unclear. This is an interesting research question, as there may or may not be trade-offs

between the objectives of reducing inequality, inflation, and environmental impacts. Nonetheless, even if taxing the rich may not be the most efficient policy tool, it will be effective if taxes are high enough—and it will be just. The question remains if it is politically viable.

Such considerations lead to other important questions for further research connected to a ‘GND without growth’. For example, how much taxation would be needed to offset the inflationary pressure arising from debt monetization for funding a GND? Further, would the level of taxation required for a tax-and-spend approach be the same as that required for a spend-and-tax approach (i.e., debt monetization)? While there is a certain symmetry between tax-and-spend and spend-and-tax, it is not clear whether the level of taxes involved in each case (that is, taxing to fund a GND, and taxes to control inflation caused by GND government spending) are the same. Further research and modelling is necessary to resolve this issue.

All these questions pertain to the general dynamic of inflation, and to its specific composition. For example, it is worth thinking about exactly what goods would be affected by GND-related inflation. Would it increase the prices of all goods or only of specific goods? If the latter, should policies designed to control or respond to inflation be tailored accordingly? It is also worth investigating if the inflation arising from the funding of a ‘GND without growth’ would remain at manageable levels or risk triggering a hyperinflation spiral. Sylla (2020) identifies three factors that have generally been necessary to trigger such a hyperinflationary spiral: internal political instability (e.g. civil conflicts), a fraying of the economic fabric (e.g. decline in production, disruption of supply chains, etc.), and a hostile external environment (e.g. wars, trade and financial embargoes, etc.). Would a ‘GND without growth’ potentially contribute to any of these factors?

A final issue to consider is that, even in the absence of a GND, inflation rates are likely to increase in the near future. The combination of insufficient production capacity of renewable energies in the short run, subdued investment in fossil

fuels, and rising carbon prices means that countries risk facing a possibly protracted transition period of rising energy costs (Schnabel, 2022). The spike in gas prices since 2021 is a case in point.: between April and December 2021, energy contributed more than 50% on average to the harmonised index of consumer price inflation in the Eurozone (Figure 2). Thus, if a high inflation rate is the most likely result of delaying the energy transition, the argument against using debt monetization to fund the GND on the grounds of potential inflationary pressure loses some of its validity.

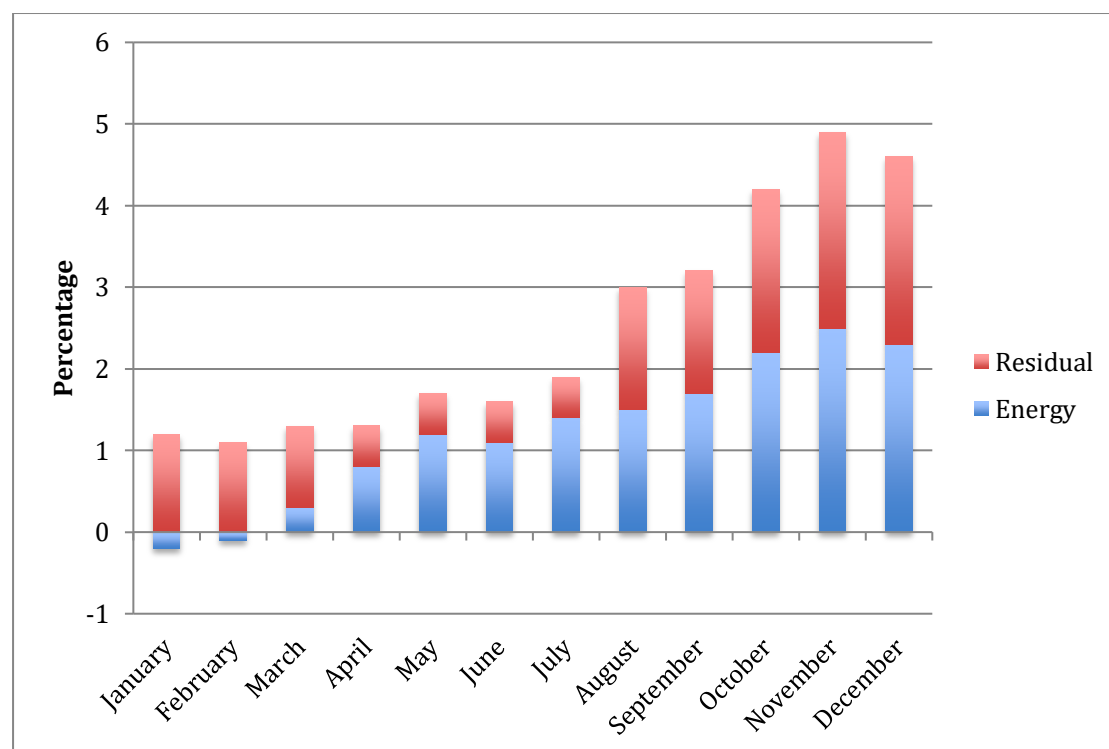


Figure 2. Energy contribution to overall monthly inflation in the Eurozone in 2021. Source: Eurostat.

Financing a ‘GND without growth’ in Italy

In this section, I test the feasibility of financing a ‘GND without growth’ in Italy, as a real-world case study. Italy has an advanced capitalist economy and a high per capita GDP, the 32nd highest in the world (IMF, 2021b), yet it has been characterized by slow or no growth over the past two decades (Romei, 2018). Italy’s current real GDP per capita is lower than it was in 2000. Furthermore, Italy is ranked second in the world for the highest median age (UN, 2020), which

currently stands at 47.3 years. Given the stagnation experienced by Italy in the last two decades and the negative effects of population aging on GDP growth rates (Lee & Mason, 2017), it could, arguably, make little sense for this country to expect economic growth as a precondition for funding and implementing a GND.

In relation to the previous discussion, a capitalist country willing to finance a 'GND without growth' has at its disposal three main strategies: public budget reallocation, taxation increases, and deficit spending. Italy could partly fund a GND by reallocating some of its budget expenses, such as phasing out environmentally harmful subsidies (EHS) estimated at 19,7 billion€ in 2019, corresponding to 1.2% of annual GDP (Ministry for Environment, Land and Sea Protection of Italy, 2019). Over 97% of EHS are in the form of tax breaks, many of which are granted to just 5 sectors that represent extremely high environmental costs while employing a limited share of the national workforce: air transport, maritime transport, fisheries, fossil fuel refining, and agriculture (Senato della Repubblica, 2017). As for other types of budget reallocations, Italy could follow Sander's proposal of diverting 10% of current military expenses to fund a GND. Given that Italy spent 1.3% of GDP on its military budget in 2019, a 10% reduction would allow the State to save slightly more than 0.1% of GDP annually. This figure is in line with what has been proposed by several Italian civil society organisations. Reducing military expenses also ties in with the objectives of a GND because 64% of Italy's expenses for military operations are connected to operations aimed at defending the extraction and importation of fossil fuels, which, in 2021, translated to an allocation of 797 million€ (Greenpeace, 2021). These two types of budget reallocation could raise up to 1.3% of GDP per year that could be targeted to fund a GND.

Financing a GND through taxation increases can be applied to a variety of tax types: income, wealth, corporate, and environmental taxes. Total tax revenues as a share of GDP currently amount to 43% in Italy. While this figure stands above the OECD average (33%), it is lower than the level of total tax revenues as a share of GDP in France (the OECD country with the highest ratio) by 4%. Hence, Italy could raise 4% of GDP from fiscal resources for funding a GND just by

equalling the current levels of taxation in France. Alternatively, the potential for taxation increases in Italy could be assessed by relying on historical precedents for the country. With regard to income tax, since the 80s, the progressiveness of this type of tax has been continually eroded. For instance, in 1973, the income tax system had 32 tax brackets while currently it has only 5. Additionally, the tax rate for the top bracket stood at 72%, while currently standing at only 43%. If the Italian Government brought back the income tax rates in force in Italy in 1974, income tax revenues would be more than 8 billion€ higher than they are under the current income tax system, corresponding to 0.5% of GDP per year (CADTM Italia, 2018). As for corporate taxation, this currently stands at 24%, whereas its highest level in the period 1987 to 1996 stood at 37%. Bringing corporate taxation back to 37% could increase tax collection by 0.5% of GDP per year (CADTM Italia, 2018). As for wealth taxation, Italy imposes some taxes on house properties and luxury goods, but there is room for a more comprehensive and progressive system. Some political parties and civil society organizations (e.g., Possibile, 2021; Sbilanciamoci 2020) have recently put forward a proposal for a wealth tax amounting to 1% on wealth above 1 million€, forecast to generate an increase in the tax take of at least 0.4% of GDP annually.

With regard to environmental taxation (i.e., all taxes applying to pollution and some of those relating to energy and transportation), Italy has a relatively high rate as a share of GDP, amounting to 2.9% (Eurostat, 2022) compared to an EU average of 2.4%. However, revenues from environmental taxation could be increased by 0.2% of GDP by taxing air pollutants, such as NO_x and SO₂, more heavily (Senato della Repubblica, 2017). More importantly, Italy could phase in a carbon tax. Recent modelling conducted by the Bank of Italy shows that a carbon tax of €100 per ton of CO₂ would generate revenues of €8 billion per year, equivalent to 0.4% of GDP (Faiella & Lavecchia, 2021). As the IMF recommends carbon taxation to be set at a level of at least 75US\$ per ton of CO₂, the modelling assumptions of the Bank of Italy appear in line with the international consensus. But since carbon taxes tend to be regressive (Schnabel, 2022), some additional measures are necessary to ensure that it is socially just and, consequently, politically acceptable. A system of carbon fees and dividends that distributes part

of the revenue from carbon tax over the entire population as a monthly climate income is advisable. Following Pollin's (2019) proposal, Italy could set the dividend paid back to citizens at 75% of the revenue generated by the carbon tax, while the remaining 25% could be used for financing a GND. Thus, in the case of Italy, the net revenue accruing to the public coffers from a carbon tax would amount to 0.1% of GDP per year. To summarise, taxation increases could raise between 1.5% and 4% of GDP per year to be allocated to funding a GND.

The question of what share of a GND in Italy could be funded through debt monetization is inevitably more speculative than the fiscal policies previously discussed. A plausible answer can, however, be provided by looking at the amount of monetization of Italy's deficit in a study carried out by the ECB in the context of the COVID-19 pandemic. Through the Public Sector Purchase Programme and the Pandemic Emergency Purchase Programme, the ECB purchased 176 billion€ of Italy's public debt in 2020 (Musso, 2020). This figure of debt monetization amounts to more than 9% of national GDP. Hence, if we assume that a GND plan in Italy needs to be sustained for a 10-year period, the amount of debt monetization carried out by the ECB in 2020 alone could, on its own, cover about 1% of the yearly cost of a GND. While this strategy would increase even further the share of Italy's public debt held by the ECB, which currently stands at 30%, this does not seem to be problematic from an economic perspective as other developed economies are already above this level: for example, 45% of Japan's debt is held by its central bank.

As for the potential risk of inflation in Italy arising from debt monetization, it is worth pointing out that in spite of such a substantial increase in deficit spending in 2020, the inflation rate in 2021 was modest: the average annual rate of change of consumer prices was +1.9% (ISTAT, 2022). Such a rate of inflation is within the upper boundary (i.e. 2%) set by the ECB for its monetary policy. Interestingly, the overall inflation rate in Italy in 2021 was disproportionately affected by the unprecedented increase in energy prices, which amounted to 41.8% (ISTAT, 2022). Consequently, the inflation rate, excluding energy, in Italy in 2021 was just 0.7% (ISTAT, 2022).

Figure 4 below summarises the ranges of the possible contribution to paying for a GND of each funding source identified above. In light of our calculations, Italy could raise up to 7.5% of GDP per year (Figure 3) for financing a GND without increasing either the size of its economy or the amount of public debt held by private or institutional investors. This figure is close to the upper boundary (i.e. 8%) of the GND cost estimates. If, instead, the lower boundary of our estimates is considered, which notably exclude any contribution from debt monetization, we discover that a modest change in budget allocations and taxation rates could nonetheless raise 2% of GDP per year. This figure corresponds to Pollin’s (2019) GND cost estimated.

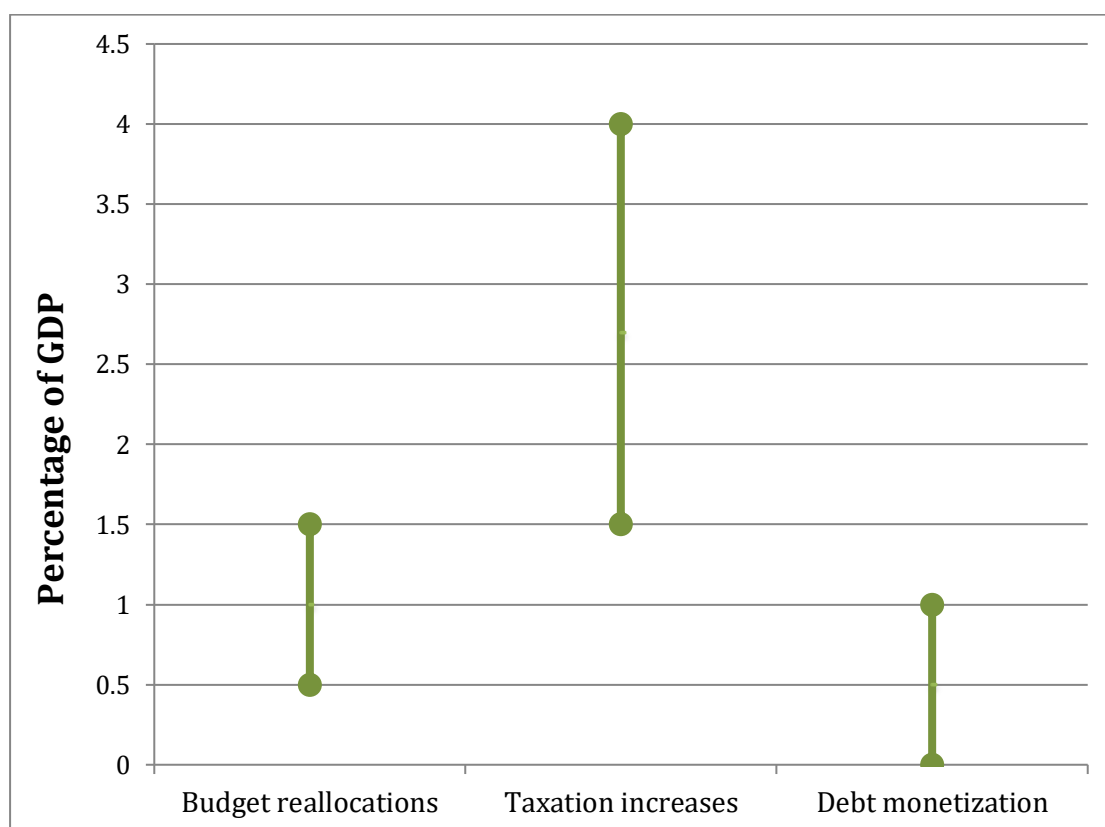


Figure 3. Range of potential contribution from fiscal and monetary policies to finance a 'Green New Deal without growth' in Italy.

Conclusions

The 'GND without growth' posits the importance of the public sector in financing and coordinating the green transition in a post-growth economy. As I argued in this chapter, budget reallocation and taxation increases are valuable funding policies as they have the advantage of not increasing the public debt. While the reallocation of public budget expenditures is a complex exercise that would vary from country to country based on priorities and needs, I identify two budget items that could be appropriated, since they run against the objectives of a GND: removing fossil fuel subsidies and reducing military allocations. Further, increasing tax rates on income, wealth, and corporate revenues is a viable funding strategy for a GND, since these are currently far from the highest levels in OECD countries in the post-war period. There is also room for increasing environmental taxation, especially by phasing in a carbon tax.

By contrast, deficit spending is a problematic policy for funding a 'GND without growth', since public borrowing entails an increase in the level of public debt towards private and institutional investors who expect to be paid interest for holding the bond. Hence, it is important for governments to collaborate with their respective central banks to monetize public debt. This strategy essentially amounts to expanding the monetary base. However, the risk of inflationary pressure arising from debt monetization should be taken seriously. Generally, we can say that, when demand exceeds supply, an increase in taxation rates would act as a brake on inflation. But the severity of inflation to be expected during the implementation of a 'GND without growth' and the types of taxation needed to ensure social justice are issues that need further research.

In this regard, I identify here a range of related questions that ecological macro-economists will need to address, namely: Are the taxes involved in tax-and-spend and spend-and-tax GNDs the same or different, and what determines the level of the latter? How would the decarbonization of the energy system affect inflation – i.e., positively or negatively? What are the distributive consequences of each approach, and how could the regressive impacts of spending-derived inflation be alleviated? And finally, Is it politically easier to first tax and then

spend, or first spend and then tax? What distributive risks are involved in each scenario?

Chapter 4

Post-growth and the Green New Deal: What European politicians think ³

Introduction

Radically challenging times call for radical policies. A letter signed by 238 scientists in 2018 on the occasion of the *Post-growth Conference at the European Parliament* called for “the European Union and its member states to plan for a post-growth future in which human and ecological well-being is prioritized over GDP” (O’Neill et al., 2018). Post-growth sees continued growth as incompatible with sustainability and proposes policies that help societies achieve strong social outcomes without growth (Burgess et al., 2021; Hickel et al., 2021). In the U.S., in 2019, Representative Ocasio-Cortez and Senator Markey introduced a resolution for a GND, proposing an ambitious decarbonization plan with policies for social justice (Pettifor, 2019; Aronoff et al., 2019). Combining post-growth with GND, some now call for a ‘GND without growth’ (Mastini et al., 2021). While there is increasing research interest about the design of such radical strategies (Kallis et al., 2018; Cosme et al., 2017; Sica, 2020), we know much less about their political acceptability. As Milanović notes, many of these ideas are not “even vaguely likely to find any political support anywhere” (Milanović, 2017), and indeed the GND resolution in the U.S. Senate was voted down 57 to 0.

Here I ask: what do political elites in Europe think about post-growth and GND? How does ideology affect their opinions? Are there consensual issues where ideological divides are overcome? These research questions are important to the extent that post-growth and GND mark promising, unconventional paths

³ This chapter is a modified version of the paper submitted for review in July 2022 to the peer-reviewed journal *Nature Sustainability* and co-authored by Mastini, R., Kallis, G., Zografos, C.

towards sustainability. They also contribute to broader understandings of the climate-related opinions of political elites and their links to ideology.

State of the literature

While we know much about public attitudes towards environmental and climate action (Li et al., 2019; Weber, 2016), we know less about the beliefs of elected representatives (exceptions are (Tranter, 2013; Fielding et al., 2012)). This is striking, given that politicians are instrumental in promoting or opposing climate policy, and their opinions influence public attitudes (Kammermann & Dermont, 2018; Kousser & Tranter, 2018). Recent research shows how politicians' climate action responds to electoral cycles (Schulze, 2021), and how their climate policy performance, when elected, depends on their professional backgrounds (Diaz-Serrano & Kallis, 2022). Less attention is paid to how ideology shapes their attitudes.

From public opinion studies, we know that ideology is a strong determinant of climate scepticism and clean energy support (Czarnek et al., 2021; Kammermann & Dermont, 2018). We also know that such links are context-specific, strong in countries like U.S., U.K., and Australia, but not in Germany or China (Tranter, 2013; Ziegler, 2017). From studies of political parties, we know that left-wing parties are more likely to make climate change a salient issue (Farstad, 2018), that left governments are likely to produce more hard climate policies -but not more soft ones (Schulze, 2021)-, and that climate policy preferences follow traditional left-right policy preferences (Carter et al., 2018; Farstad, 2018), although with exceptions (Marcinkiewicz & Tosun, 2015). Research on politicians, as distinct from their parties, finds that they tend to distinguish climate bills based on ideological frames (Hess et al., 2016). Further, their attitudes towards climate policy are more polarised than those of the electorate (Tranter, 2013). In addition, the more to the left their beliefs, the more likely are politicians to accept the scientific consensus on climate change (Fielding et al., 2012). This research, however, is confined to the special contexts of the U.S. and

Australia which are different from those of Europe. All these studies are also confined to conventional climate policies, having less to say on relationships between ideology and radical alternatives, such as the ones that interest us here.

Theoretical expectations

This research asks three empirical questions. Firstly, what are the opinions of elected European politicians about post-growth and the GND? Secondly, are differences in opinion associated with ideology? Thirdly, are there issues on which partisan opinions converge?

With respect to the first question, our expectation is that the opinions of politicians will broadly map those of the public and scientists, but with specific items that remain to be revealed. Regarding growth, the opinions of the public and scientists have been classified as pro-growth, green growth, agnostic to growth, and degrowth (Drews et al., 2019; Drews & van den Bergh, 2016; Drews & van den Bergh, 2017). With regard to the GND, Pérez (2021) classifies three types: GNDs prioritizing environmental and social justice with reduced resource and energy use; GNDs based on public investment and ownership, and expanding the welfare state; and programs of private-driven investment in technological solutions with little regulation of emissions. Empirically, I am seeking to ascertain whether these clusters are mirrored in politicians' opinions and search for specific features of European politicians' discourses.

For the second question, in line with prior research on public and politicians' attitudes, I expect to find marked left-right differences, and more radical opinions held by politicians to the left. However, as recent research on Centre-right vs. far-right parties and left vs. right parties shows, opinions are varied and nuanced, with ideology shaping the *types* of energy and climate policies supported (Hess & Renner, 2019; Schulze, 2021).

Regarding the third question, recent studies claim that political acceptability of post-growth may increase if the problem is framed as one of limited economic resilience due to growth-dependence (Douglas, 2022). Alternatively post-growth can be translated into an issue of well-being rather than one of environmental loss (Tomaselli et al., 2021), or framed as a question of distribution (Rivera, 2018). Here I assess whether any of these framings emerge as a connector across partisan opinions.

A unique dataset

For this study, I benefited from access to 41 elected, hard-to-get members of the European Parliament whom I interviewed remotely, asking them to rank and discuss 38 statements regarding (limits to) growth and ambitious decarbonization. I picked these two themes as illustrative of broader debates, to test the political room and feasibility of a radical proposal for a ‘GND without growth’ (Mastini et al., 2021). I was interested in knowing to what extent there are opinions within the European Parliament receptive to such a proposal (not just a GND, radical as this is, but a ‘GND *without* growth’), to see how opinions — for, if any, and against — relate to political ideology, and to what extent, and on what issues ideological differences could be transcended.

I organized and analysed our interviews using Q methodology (see Methods Annex). Q is a mixed method, which performs a systematic study of subjective viewpoints. It was introduced by physicist and psychologist William Stephenson with a letter to *Nature* in 1935. The logic of Q methodology differs from survey (‘R’) research which tends to be a source of confusion and misunderstandings. Q does not assess the degree of agreement of interviewees on the list of statements provided, it instead asks them to ‘sort’ (rank) them, each sort giving a glimpse into the unique subjectivity (viewpoint) of each respondent. It is these subjectivities that are then clustered into groups of discourses. Q works with a small number of respondents (41 is within the typical range of 30–60) (Brown, 1980), who are purposefully chosen so as to be knowledgeable and hold diverse

opinions, capturing in this way the full range of subjectivities existing within the population studied. Accordingly, it is the list of statements, and not the participants, that need to be representative/exhaustive (it might be instructive to think of respondents and statements in Q as equivalent to independent variables and respondents in ‘R’, respectively). There is evidence that the number of discourses held by a population on any given issue is limited, and that by following the systematic steps of Q methodology, one can grasp these representative discourses with a small but sufficiently diverse sample of people (Thomas & Baas, 1992).

Our 41 participants were recruited from the 108-members ad hoc Parliamentary Intergroup formed to discuss policies related to a GND, not to be confused with the European Green Deal (hereafter ‘EGD’) adopted by the European Commission in December 2019 as the official climate plan of the EU (Wahlsten, 2020; Adler & Wargan, 2020). They are, therefore, knowledgeable and interested—for or against—radical climate mitigation policies. The 41 MEPs selected for this study ensured a diversity of viewpoints, representing different political groups and geographical regions of Europe (Figure 1). While not strictly relevant to our study, I attempted to keep gender balance in the P-set: of the 41 MEPs, 16 are female (39%) and 25 are male (61%).

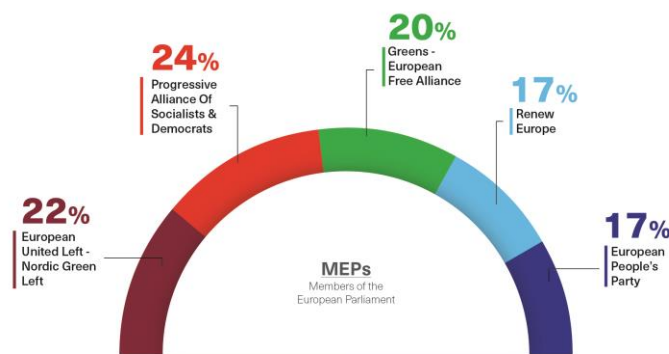


Figure 1a. Percentages of MEPs from different political parties in our sample of surveyed respondents. To ensure a diverse and balanced collection of viewpoints in terms of political ideologies, I interviewed 7 MEPs of the European People's Party, 10 MEPs of the Progressive Alliance of Socialists and Democrats, 7 MEPs of Renew Europe, 8 MEPs of the Greens–European Free Alliance, and 9 MEPs of the European United Left–Nordic Green Left.

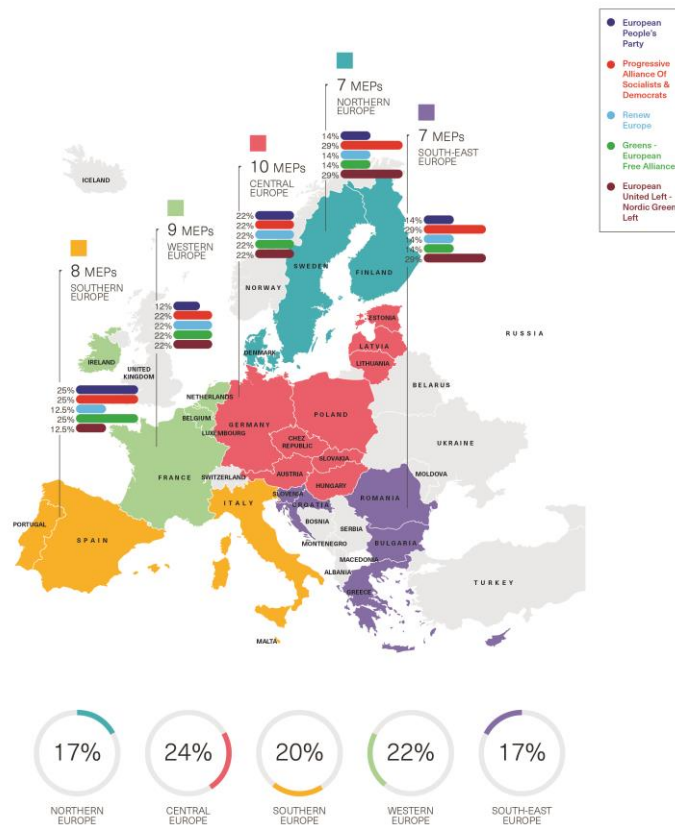


Figure 1b. Percentages of MEPs from different European regions in our sample of surveyed respondents. To ensure a geographically diverse and balanced collection of viewpoints, I interviewed 7 MEPs from Northern Europe (Denmark, Sweden, Finland), 10 MEPs from Central Europe (Germany, Austria, Poland, Czech Republic, Hungary, Latvia, Estonia, Lithuania, Slovakia), 8 MEPs from Southern Europe (Portugal, Spain, Italy, Malta), 9 MEPs from Western Europe (France, Belgium, Netherlands, Luxembourg, Ireland), and 7 MEPs from South-Eastern Europe (Bulgaria, Romania, Slovenia, Croatia, Cyprus, Greece).

Radical opinions in the European Parliament

Our analysis (see Methods) finds three clearly discernible, and statistically distinct sets of opinions (or ‘discourses’) (Table 1). I label these: a ‘Post-growth Deal’ (Discourse 1), for its critical takes on economic growth; an ‘Ecosocialist GND’ (Discourse 2), with a critical take on capitalism and support for state-driven decarbonization; and a ‘Liberal Green Deal’ (Discourse 3), which sees the EGD as sufficient and favours market solutions.

Table 1. List of salient statements for each of the three discourses. Salient statements include both distinguishing statements at $p < 0.01$ (indicated with *) and those statements marked at the extremes of agreement and disagreement (+/-3, +/-4).

	Post-growth Deal (D1)	Eco-socialist Green Deal (D2)	Liberal Green Deal (D3)
+4	S7 You cannot address climate change without addressing inequality	S8* Massive public investment is necessary to decarbonize energy and transport	S15* Economic growth is indispensable for lifting people out of poverty
	S10 Environmental justice should be at the centre of the Green New Deal	S38 Vulnerable communities will benefit from a Green New Deal	S21* You can't tell voters that you don't want growth
+3	S19* Work-time reduction is a good policy proposal	S10* Environmental justice should be at the centre of the Green New Deal	S6* Climate change is an externality that can be fixed with market
	S8 Massive public investment is necessary to decarbonize energy and transport	S7 You cannot address climate change without addressing inequality	S31 The European Green Deal is ambitious enough
	S38 Vulnerable communities will benefit from a Green New Deal	S19 Work-time reduction is a good policy proposal	S38 Vulnerable communities will benefit from a Green New Deal
+2	S16* Policy makers' focus on growth is an obstacle to strong environmental policy	S5* Climate change is the result of unbridled capitalism	—
	S23* The EU should limit energy consumption to reduce extractivism in the Global South	—	—
+1	S9* It's not enough to replace GDP with better socio-economic indicators to reduce environmental impacts	S27* Energy production should be socialised in state-owned companies and small-scale local coops	S25* Without growth, unemployment will inevitably increase
	—	—	S33* People are not willing to give up their energy intensive lifestyle
-3	S1* Absolute decoupling between growth and environmental impacts is possible	S3* Carbon taxation is essential for reducing emissions	S5 Climate change is the result of unbridled capitalism
	S25* Without growth, unemployment will inevitably increase	S28 The EU energy liberalisation agenda will help with climate change mitigation	S11 The EU must compensate the Global South for its climate debt
	S15 Economic growth is indispensable for lifting people out of poverty	S31 The European Green Deal is ambitious enough	S36 We should pursue strong environmental and social policies independent of their impact on growth
-4	S31 The European Green Deal is ambitious enough	S6 Climate change is an externality that can be fixed with market	S4 We need a wartime-like mobilization to rapidly decarbonize the economy
	S33 People are not willing to give up their energy intensive lifestyle	S37 Citizens are unlikely to vote in favour of carbon taxation	S27 Energy production should be socialised in state-owned companies and small-scale local coops

Our three discourses map well with Pérez's (2021) classification of three types of GNDs: programs prioritizing environmental and social justice with reduced resource and energy use; programs based on public investment and ownership, expanding the welfare state; and programs of private-driven investment in technological solutions with little regulation of emissions. Wahlsten (2020) distinguishes political GND discourses (such as DiEM25's 'GND for Europe') which, like our Discourse 1 and partly Discourse 2, wish to “decouple human flourishing from GDP growth” from more liberal versions, like the EGD, which, like our Discourse 3, see in decarbonization a growth strategy that can make the EU more competitive.

For Discourse 1, as long as there is “focus on GDP there is little hope for making progress on the ecological transition” (Interview #I22). “Offering to citizens alternatives for living a good life with a smaller ecological footprint should be the central proposal” (#I34). Our statistical analysis finds here salient statements that question the possibility of green growth (Statement #S1, Table 1) or the necessity for growth (#S15, #S25), and that see growth as an obstacle to strong

environmental policy (#S16). Respondents rejected absolute decoupling between growth and environmental impacts because “a growing body of empirical evidence points against it” (#I5) and, because, even if possible, it is highly unlikely that it could be achieved “in the timeframe relevant for meeting our climate targets” (#I14).

A critique of growth in this discourse goes beyond merely replacing GDP (#S9) – as one interviewee put it: “replacing GDP is a step in the right direction but in the end what matters are energy and material indicators” (#I9). The belief that people are not willing to give up their energy intensive lifestyles is rejected (#S33), since what people want is “a good life rather than luxury lifestyles” (#I38). After all, “most voters care about employment and social security rather than GDP” (#I40).

Alongside this post-growth orientation, one finds in Discourse 1 a strong emphasis on equality and trans-frontier justice (#S7, #S10, #S23, #S38), support for massive public investment in decarbonizing the economy (#S8), so that ‘the state provides citizens with suitable green and public services’ (#I6), and work-time reductions (#S19). Finally, like Discourse 2, there is the view that the existing EGD does not go far enough (#S31).

Discourse 2 is also radical, but with a different orientation from Discourse 1. One might characterize this orientation as (eco)socialist, given its critical stance towards capitalism, which distinguishes it from the other discourses (see #S5, Table 1). “Neoliberalism has hindered progress on the green agenda for many decades”, one interviewee put it (#I5). The accent here is on decisive state action and the rejection of market solutions. “Capitalism can drive innovation but [the EU] need[s] public policies for coordinating the green transition”, one interviewee told us (#I11). This includes massive public investment in transport and energy (#S8) and socialization and public ownership of energy systems (#S27). There is rejection of energy sector liberalization (#S28) (“liberalized utilities look for increasing their profits rather than investing in green energy”, one interviewee stated - #I6). And there is skepticism about market solutions (#S6), including carbon taxes (#S3), though, interestingly, the discourse rejects concerns about the popularity of carbon taxes among voters (#S37). The excessive reliance on the private sector for driving change (#I16) may be the

reason why this discourse sees the EGD as not ambitious enough, even though “it is the most ambitious green plan in the world” (#I10) and “MEPs can work on making it more ambitious” (#I22).

Unlike Discourse 1, there is no positioning in Discourse 2 on the question of growth - for or against (Table 1). In the interviews, MEPs positioned within this discourse expressed opinions that one could classify as growth-agnostic. “Unemployment is inevitable with or without growth”, one told us (#I4). Their emphasis was on redistribution (#I26): “most of economic growth goes to make the rich richer” (#I17) and “there is enough wealth in the EU to ensure a good life for all citizens, but it's captured at the very top” (#I37). Reducing working hours is seen as a good policy proposal in this respect (#S19), as it allows redistributing the available work “more fairly” (#I29). It follows that, like Discourse 1, there is a strong emphasis on equality and justice (#S7, #S10, #S38). Some interviewees actually said that the EGD is not a GND (#I29), precisely because of the lack of consideration in the former of issues of “environmental justice” (#I40) and “economic inequality” (#I32).

Discourse 3 moves in a very different direction from discourses 1 and 2, and finds that the EGD is ambitious enough (#S31) and capable of making the EU a “climate leader” (#I8), rekindling the EU project (#I36). Capitalism and its dynamism dominate in this discourse (#I19, #S5) since “spurring competition and innovation is key to addressing the climate crisis” (#I34). The climate problem is framed as one of market externalities (#S6) (interestingly without a distinctive opinion though — for or against — carbon taxation). There is clear disagreement with the idea of socializing energy production (#S27), since, as one respondent put it, this would create “a monopoly of green energy” (#I33). “Competition among private utilities drives down prices and improves the penetration of renewables” (#I28), spurring innovation (#I3), interviewees told us. This opposition to state interventionism could also explain the rejection within this discourse of the narrative of a ‘wartime-like mobilization’ against climate change (#S4, Table 1).

Discourse 3 is pro-growth, finding growth indispensable for combating poverty and unemployment (#S15, #S25) and rejecting the prioritization of environmental goals over growth (#S36). Growth enables technological progress (#I13) and improves people's quality of life (#I1), MEPs from this discourse told us. People want growth (#S21) and they want to sustain their energy-intensive lifestyles (#S23). "The green transition should not be about sacrifices, but rather about expanding the offer of sustainable goods and services" (#I42), I was told, for example, by replacing petrol cars with electric ones (#I26). The objective should be to make lifestyles as sustainable as possible, not downsize them (#I10 and #I21). Voters want politicians to "deliver on growth ... and see economic opportunities increased" (#I30), a "green and inclusive growth" (#I35) that aligns environmental and economic concerns. "If decarbonization doesn't spur growth it will not be considered successful" (#I6).

There is no strong positioning here on questions of environmental justice, though there is a clear rejection of the stronger notion of the EU compensating the Global South for its climate debt (#S11) and support for the statement that vulnerable communities stand to benefit from a GND (#S38).

Room for alliances

Indeed, the issue of vulnerable communities is the one in which all discourses agree – although one question that arises is whether they all understand this plastic term, 'vulnerable community', in the same way. Our results produce only one statistically-significant consensus statement, (that is a statement where there is statistically distinctive agreement): Statement 38 on the benefits of vulnerable communities coming from a GND. Respondents across discourses claimed that "vulnerable communities should be at the heart of green policies" (Discourse D2 #I37), that "all citizens should benefit from a GND, but poor communities the most" (D3 #I32), and that this is "particularly important in poorer member states" (D3 #I39). A GND is thought of as benefiting vulnerable communities by creating green job opportunities (D1 #I3, D3 #I11, D3 #I18). Interestingly, obtaining the support of vulnerable communities is also seen as a

necessary requisite for ensuring electoral support for a GND (D1 #I16, D1 #I31, D2 #I27, D2 #I43).

A second way of scoping the room for consensus is to see the relative priority/rank each statement has within each discourse. There is a clear convergence here between Discourses 1 and 2 that score in similar ways for most statements, while Discourse 3 has divergent rankings. Indeed, if we look at the participants expressing each discourse, Discourses 1 and 2 cover the same political ground (centre left and left), while Discourse 3 was expressed by members resolutely on the right. MEPs associated with Discourse 2 (Eco-socialist Green New Deal) belong to the Progressive Alliance of Socialists and Democrats (5 MEPs) parliamentary group (centre-left), as well as to the Greens–European Free Alliance (2 MEPs), and the European United Left–Nordic Green Left (2 MEPs), which occupy the space from left to far left. The ‘Post-growth Deal’ (Discourse 1) represents in a way the mirror image of Discourse 2, that is, same parties but in inverse proportions: most MEPs supporting this viewpoint belong to the European United Left–Nordic Green Left (5 MEPs) and to the Greens–European Free Alliance (4 MEPs) groups, followed by those belonging to the Progressive Alliance of Socialists and Democrats political group (2 MEPs each). Discourse 3, on the other hand, is a discourse mainly of the centre-right: most MEPs supporting its viewpoints belong to the Renew Europe (6 MEPs) political group, and to the European People's Party (4 MEPs).

This seems to confirm the pattern found in the empirical literature, whereby left-wing parties tend to adopt more radical climate positions. The advantage with Q methodology is that it allows us to unpack nuance within ideological opinions. I find, for example, both an internal variation within the centre-left (Discourse 1 versus Discourse 2), and possibilities for convergence both within the centre-left and, partially at least, with the right.

Figure 2 shows salient statements shared by Discourses 1 and 2, and the position of Discourse 3 in relation to them. The two discourses (1 and 2) agree on the need for massive public investment and for going beyond the existing EGD; yet,

those are framings, which might bring them together, but will meet resistance and closed ears so to speak, on the right side of the aisle (Discourse 3). Framing radical proposals in terms of environmental justice or inequality seems at least, in principle, to meet less opposition from the right, though given Table 1, this would not go as far as talking about reparation/payment of carbon debts – and one should not underestimate the different meanings and solutions that different ideologies and political positions may give to inequality. Interestingly, working time reduction appears as a policy where the two ‘left’ discourses seem to converge, and one in which Discourse 3 is relatively indifferent to, and therefore less likely, to oppose (Figure 2).

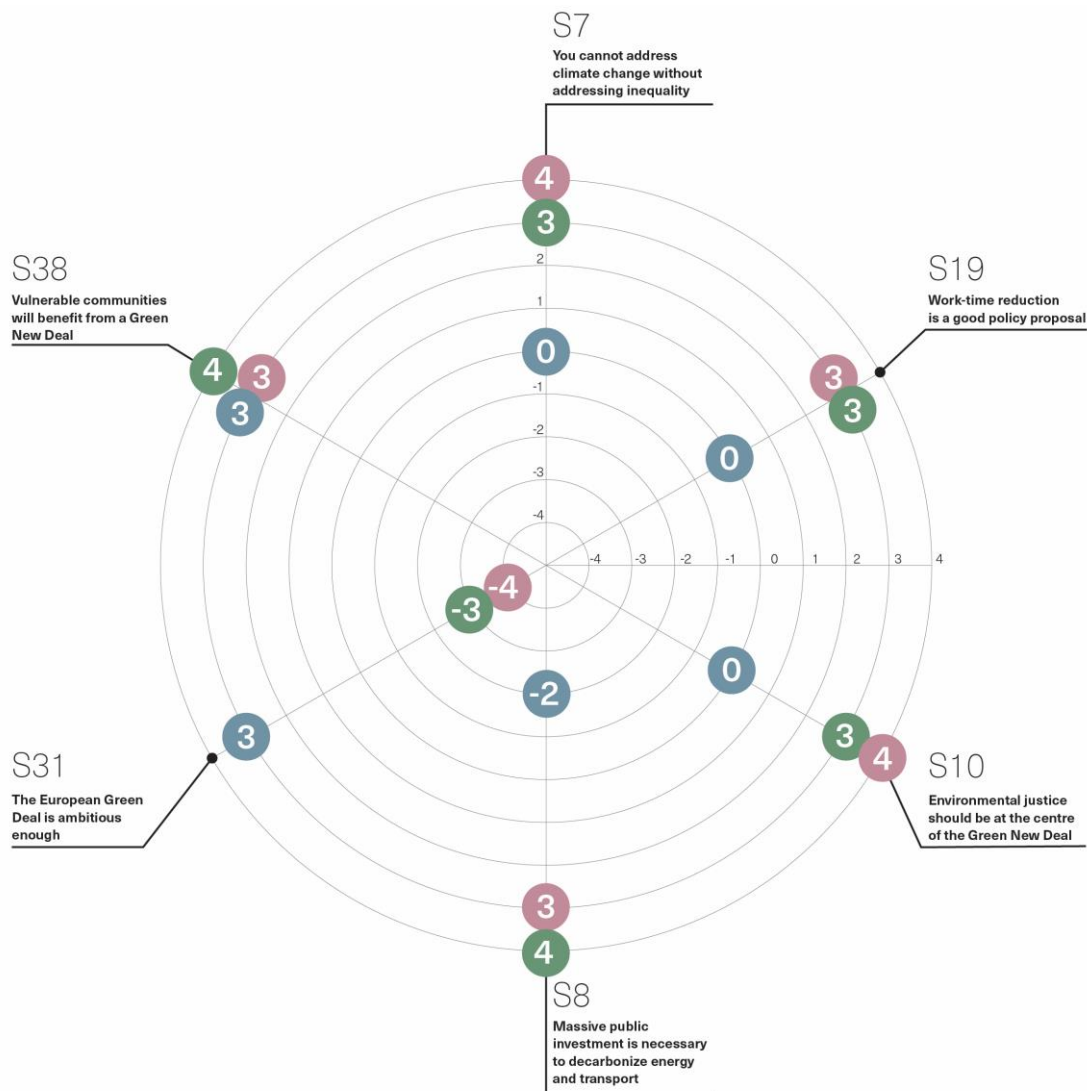


Figure 2. Radar diagram showing salient statements shared by Discourses 1 (red) and 2 (green), and the position of Discourse 3 (blue) in relation. This diagram shows that of the 6 salient statements on which Discourses 1 and 2 score similarly, Discourse 3 is indifferent (i.e. it scores 0) only to statements 7, 10, and 19. On statements 8 and 31 Discourse 3 shows an opposite tendency to Discourses 1 and 2. Lastly, all three discourses score similarly on statement 38, making it the only ‘consensus statement’ of our study.

Another way to see room for alliance is depicted in Figure 3, which positions respondents in relation to their agreement with Discourses 1 and 2. We see here a cluster of agreements with the eco-socialist discourse that includes social-democrats, leftists and greens, but also, interestingly, an odd liberal and right-wing MEP. Note that Discourse 3 is not depicted on this axis, and these two MEPs score higher there. Nonetheless,, it is interesting that, at least within a centre-right minority, there might be openness to the ideas of what I called here ‘an eco-socialist GND’. The post-growth cluster instead (right end) appears more ideologically homogeneous with representatives of greens and left only.

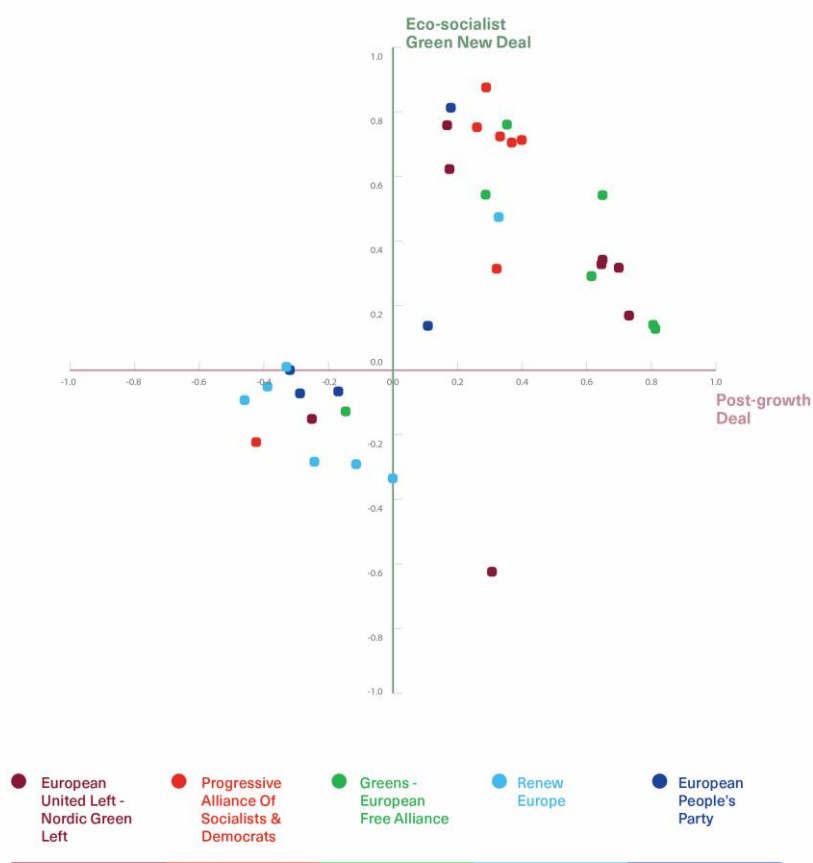


Figure 3. Scatter plot representing the distribution of MEPs from different political groups based on their proximity to Factor 1 (Post-growth Deal discourse) and Factor 2 (Eco-socialist Green New Deal discourse). The x-axis represents the loadings of each MEP on Factor 1, whereas the y-axis represents the loadings of each MEP on Factor 2. The scatter plot shows that MEPs from the Greens/European Free Alliance and European United Left/Nordic Green Left political groups score higher on Factor 1 than other political groups, while most MEPs scoring high on Factor 2 are from the Progressive Alliance of Socialists and Democrats political group.

Growth seems to be an issue where the three discourses differ considerably. Discourse 3 represents the prevalent pro-growth set of beliefs, Discourse 1 stands on the opposite end with a post-growth/degrowth set of opinions, while Discourse 2 maintains an agnostic position, which might nevertheless be compatible with a post-growth orientation. For instance, a respondent included in the ‘ecosocialist GND’ discourse expressed criticism of the fact that “environmental regulations are implemented only if they don't negatively affect GDP” (D2 #I14), while other respondents recognised that adopting more sustainable and holistic indicators than GDP is essential for good environmental policy making (D2 #I35). Lack of growth, another one noted, does not necessarily lead to higher unemployment rates “if we invest in energy-saving technologies rather than in labour-saving ones” (D2 #I39).

Work-time reduction policy here appears as an issue where the two Discourses (1 and 2) meet, despite deviations on their takes on the relationship between growth and the environment. Interviewees positioned within Discourse 2 expressed support for work-time reduction, because “it can have both economic and environmental benefits” (D2 #I12), especially in the context of economic slowdown generated by the pandemic (D2 #I17). Such agnostic takes on growth may be a good basis for bringing Discourses 1 and 2 together around a radical GND, although this would not serve to alleviate the opposition from Discourse 3, which seems to hold strong pro-growth beliefs. Grounding support of work-time reduction on the question of post-growth may also raise more resistance from those identifying with Discourse 3, than would otherwise be the case.

Open questions

Our analysis points to fertile political ground for a radical discursive coalition around an equity/justice-focused GND with a growth-agnostic position—what I call a ‘GND without growth’ (Mastini et al., 2021). However, this coalition, within the left is likely to meet opposition from the right, which is firmly grounded in a pro-growth, pro-market discourse. Focusing on frontline communities, questions

of inequality and concrete worker-oriented policies, such as work-time reduction, may instead open up some shared space across the sides of the aisle, but questions arise as to the extent to which such signifiers and policies really do mean the same thing from different ideological standpoints.

A question that our research cannot answer is whether elements of such rapprochement (within the left, and between left and right) show up, or will show up, in actual policy/legislative work in the European Parliament, and whether they face resistance, from whom and on what grounds. A methodology for investigating the connection between discourses and actual political networking and legislative practice could start from archival research looking at how MEPs included in Discourses 1 and 2, or the parties represented in these discourses, have so far voted in the course of the ninth legislature of the European Parliament, inaugurated in July 2019, on several bills related to post-growth and the GND, such as: the Just Transition Fund, European Strategy for Energy System Integration, or the European Strategy for Hydrogen. Such empirical research on actual policy-making could fruitfully complement our own research on opinions, and examine to what extent, and how, the discourses identified here have (or start to have) 'real life' political implications.

Q studies allow for the identification of distinctive discourses, but cannot tell us how prevalent each discourse is within the broader population of reference (i.e. Euro-parliamentarians in our case). I cannot know from our research how much support within the European Parliament an eco-socialist GND and especially a post-growth deal could count on (though our indicative results showing that they had the support of all centre left to left parliamentarians within our sample suggests that it would not be negligible). Another open question to further advance our line of research, therefore, pertains to how generalizable are the discourses outlined in the present paper to other MEPs. To investigate this a more traditional study based on survey questions put to a representative sample of MEPs could be conducted.

In this paper I have substantiated with empirical findings that taxonomies of ecopolitical discourses identified by analysts beforehand play out in actual political arenas. Post-growth, eco-socialism and other radical ideas are not just 'academic' discourses or fringe opinions, but actual beliefs held by elected representatives which frame their discourses. While confirming the claim of peer-reviewed articles on the greater pro-environmentalism of left-wing political parties, I discerned points of difference in sets of beliefs/viewpoints within the left, and went deeper into the different discourses around the questions at stake. More importantly, our method allowed us to look for possible overlaps and discursive coalitions between viewpoints, which, in the literature, are presented as otherwise mutually-exclusive. Such findings can prove valuable in advancing political debates on increasingly urgent radical environmental policy-making to face the mounting ecological crisis.

Methodological Annex

Main stages of Q methodology

The main stages of conducting Q methodology studies are summarised below:

- Study Design
 - Structuring the 'Concourse': A pool of statements involving an exhaustive number of opinions concerning the issue under investigation is generated.
 - Structuring the 'Q-set': A formal procedure is used to choose a smaller (representative) number of statements to which participants will be asked to respond.
 - Selection of participants.
- Data Collection: Participants are asked to sort statements according to a scale of 'Mostly Agree' to 'Mostly Disagree' on a template (the 'grid') designed to force responses to a quasi-normal form of distribution in order to facilitate comparison between individual Q sorts.

- Following this ‘sorting’ exercise, participants are asked to explain some of their choices (typically, the placement of certain statements at the extremes of the ‘Mostly Agree’ or ‘Mostly Disagree’ range). Q is a mixed method, and this qualitative information helps to better understand elements of discourses at the analysis stage.
- Data Analysis: Data are analyzed (using Principal Component Analysis) from participants’ statement sortings to discern discourses among respondents.
- Results: Factors (discourses) are identified and associated with statements; general characteristics of the chosen solution are presented (e.g. % of variability explained, etc.) and complemented with qualitative data.

This study’s design and execution

Structuring the concourse

In this study, the concourse (i.e. the full range of views on the topic) consisted of statements about the Green New Deal and post-growth found in journalistic and academic literature. The statements were summarised in brief and understandable sentences.

Structuring the Q-set

To produce my Q-set, I used informal procedures to select which statement to retain from the concourse. As for the number of statements to be included in the Q-set, opinions vary among theorists. However, Brown (1980) claims that most Q-sets comprise between 30 and 60 statements. It is crucial that the number of statements should not overwhelm the respondents (Schlinger, 1969).

When creating the concourse, the goal is to collect all that is being said by the population about the research question, and the main concern is exhaustivity. This step ends only when the concourse reaches saturation, which means that repetition and overlap start appearing in the initial pool of statements. The

reduction process to structure the Q-set aims to eliminate that and to create a manageable set while maintaining the exhaustiveness of the statements set (representativeness). In other words, the goal is not to select or drop ideas, but to clean the initial pool of statements. If the reduction process is done properly, the final Q-set should be as exhaustive as the initial concourse but without repetition and overlap, and with clearer statements.

When it came to pre-selecting items, I did not present to participants items designed by ourselves or produced by other studies; instead, I collected and organised all opinions that I found about the GND and post-growth, and presented participants with a summarised version. In doing so, I followed the premise that a good Q-set consists of ideas that exist 'out there' and that have not come from the researchers. The advantage in this approach is that the method can uncover an element that is important for the population and that was not previously considered. This is why Q methodology is said to be an exploratory method. For the present study, 38 statements were chosen as an appropriate final number, given the relatively high planned number of interviews (41).

Selection of participants

In Q methodology, participants are selected from a close, targeted group of individuals. This group of participants is referred to as 'the person-sample' (P-set). The person-sample, unlike the structured Q-set, does not need to be representative of the population. Our P-set was selected based on diversity of perspectives and knowledge of the topics under investigation. Specifically, I chose the P-set from within the list of Members of the European Parliament involved in the 'Intergroup on the GND'.

Large numbers, which are so fundamental in other types of social science research, are rendered less important in Q methodology, because the emphasis is on the nature of the segments of subjectivity that exist and the extent to which they are similar or dissimilar (Brown, 1980). The P-set was selected on the basis of diversity of political groups and nationality to generate a wider array of discourses. However, I was not able to achieve a perfect representation of all

political groups in the P-set, nor of all geographical regions, because of their unevenness in the Intergroup itself. While not strictly relevant to our study, I also attempted to keep gender balance in the P-set: of the 41 MEPs, 16 are female (39%) and 25 are male (61%).

Data collection

The Q sorting was conducted online through the free online tool Q-TIP, developed by the Division of Information Technology at the University of Wisconsin-Madison, since it was not possible for the researchers to meet in person with the participants on account of travel restrictions during the 2020 COVID-19 pandemic. Q-TIP is designed to protect user data and maintain a high degree of confidentiality.

Participants were asked to sort the statements to a scale of 'Mostly like my view' to 'Mostly unlike my view' on a template (the 'grid') designed to force responses to a quasi-normal form of distribution in order to facilitate comparison between individual Q sorts. After sorting the statements, participants were asked to provide commentaries to 4 statements of their choice: primarily focusing on the highest (+3/+4) and lowest (-3/-4) ranked statements, or statements they found particularly difficult to place on the grid.

Data Analysis

Q-methodology generates distinct discourses through factor analysis. Data analysis was carried out using PQ-Method, a software for Q methodology studies. As with most studies, I used Principal Component Analysis (PCA) that extracts distinct factors (representing discourses) based on a correlation matrix between Q sorts. Each level of correlation of Q sort with each factor is then calculated, indicating the respondent's level of agreement with that viewpoint. The factors are 'rotated', either through Varimax or manual rotation, to clarify viewpoints. Sorts are then 'flagged', meaning a decision is made as to whether they will be

included in the final computation of factors. Sorts which correlate too highly with multiple factors ('confounded') or with no factors ('non-significant') are excluded.

The above process was carried out in examining solutions of 2-5 factors. Ultimately, I decided on a 3-factor solution, a solution that accounts for 78% of the total variance. The 3-factor solution is corroborated by the fact that the eigenvalues drop significantly after the third factor, with the fourth eigenvalue being lower than one: the Kaiser-Guttman criterion states that factors should only be kept when eigenvalues are higher than one (Brown, 1980). Furthermore, a screen test was conducted which clearly shows that eigenvalues level off after the third factor. Finally, other solutions produced sorts which correlated significantly with multiple factors, sorts that correlated with no factors, or factors that did not provide meaningful interpretations on closer inspection. Another major concern was that other solutions produced higher inter-factor correlations, meaning less distinctive viewpoints.

After deciding on a 3-factor solution, several manual rotations were performed with the use of the PQROT application in the PQ-Method. The results of one manual rotation were selected for use in the analysis, as they provided a suitable distribution of explained variance between the three factors, allowed a meaningful association of particular sorts to specific factors (discourses), produced factor arrays and distinguishing statements that provided a meaningful differentiation between the factors, and related well with qualitative data from interviews.

Loadings were considered significant (at $p < .01$) if they exceeded $\pm .418$, following a formula typically used in Q methodology studies to determine this value: $2.58(1/\sqrt{n})$, where 'n' equals the total number of statements. Flagging was first done automatically, and then manually inspected and corrected: significant loadings were flagged provided they loaded significantly onto one factor only, and, as a result, I removed the flag from four 'mixed' cases and one null case.

Chapter 5

GND without growth: the three tenets

Drawing on concepts from the interconnected disciplines of environmental politics and ecological economics, this thesis was able to provide some contributions to advance the scholarship of both fields of research.

Chapter 2 provided answer to the research question “What are the main points of convergence and friction between the GND and degrowth narratives for rapid decarbonization at the national level?”. I found that the GND and degrowth discourses converge on numerous policy proposals, such as: i) public investments for financing the energy transition; ii) industrial policies to lead the decarbonisation of the economy; iii) the socialisation of the energy sector to allow longer investment horizons; iv) the expansion of the welfare state to provide social protection to citizens in the context of heightened environmental vulnerability and contraction of aggregate economic activity. Additionally, the degrowth discourse makes the case that a successful climate change mitigation strategy must place at its center the reduction of throughput to facilitate a rapid decarbonisation of the energy system, to avoid environmental problem-shifting, and further extractivism in the Global South. These points are agreed upon by many—but not all—scholars and activists associated with the GND discourse. Based on these findings, I propose the concept of a ‘GND without growth’ as a suitable synthesis of the GND and degrowth discourse.

The main point of friction between the GND and degrowth discourses pertains the *desirability* of economic growth from a socio-ecological perspective and the *necessity* of GDP growth to fund the green transition. Some proponents of the GND see growth as both the engine *and* a result of the green transition. While House Resolution 109—which was presented to the US Congress in 2019 under

the title *Recognizing the duty of the Federal Government to create a Green New Deal*— does not explicitly mention economic growth as a policy objective, the idea is implicit in the text given its goals to “spur economic development” and “to grow domestic manufacturing”. Three major policy experts associated with the GND discourse in the US argue that boosting working class wages and upgrading infrastructure would strengthen economic growth, therefore making the GND proposal “fiscally responsible” (Talbot Zorn et al., 2019). Pollin (2018) goes even further arguing that funding for the green transition should be expressed as a fixed percentage of GDP (e.g., 2% per year) and that, therefore, the higher GDP growth on a given year, the better for rapid decarbonization. Degrowth scholars rebut that if the objective of a ‘GND without growth’ is to achieve specific kinds of goals, it makes more sense to invest in those directly, rather than to grow the whole economy indiscriminately and hope for a specific outcome. For instance, if the State increases expenditures in order to decarbonize the energy system, this could be used to directly increase renewable energy production (sustainability-oriented policy), rather than to boost aggregate demand (growth-oriented policy).

Consequently, in chapter 3 I investigate the research question “What are the fiscal and monetary policies with which a country can finance a ‘GND without growth’?”. I find that budget reallocation and taxation increases are valuable funding policies as they have the advantage of not increasing public debt. While the reallocation of public budget expenditures is a complex exercise that would vary from country to country based on priorities and needs, we identify two budget items that could be appropriated, since they run against the objectives of a ‘GND without growth’: removing fossil fuel subsidies and reducing military allocations. Further, increasing tax rates on income, wealth, and corporate profits is a viable funding strategy since in most countries they are low compared to the rates already applied by certain OECD countries, such as France. There is also room for increasing environmental taxation, especially by phasing in a carbon tax. By contrast, deficit spending is a problematic policy for funding a ‘GND without growth’, since public borrowing entails an increase in the level of public debt towards private and institutional investors who expect to be paid

interest for holding government's bonds. Hence, it is important for governments to collaborate with their respective central banks to monetize public debt. This strategy essentially amounts to expanding the monetary base. However, the risk of inflationary pressure arising from debt monetization should be taken seriously and appropriate deflationary policies are needed.

Having discussed the policies that would characterize a 'GND without growth' and the tools necessary for funding it, in chapter 4 I provided answer to the research question "What possibilities are there for a 'GND without growth' to take root in legislatures such as the European Parliament?". With the statistical analysis carried out through the use of Q methodology, I find that fertile political ground for a radical discursive coalition around an equity- and justice-focussed green transition with a growth-agnostic position exists among left and green Members of the European Parliament. However, this red-green coalition is likely to meet opposition from the right, which is firmly grounded in a pro-growth, pro-market discourse. On the other hand, there is a consensus among all political groups on some principles and policy proposals of the 'GND without growth' framework, such as: the green transition should not penalize the poor and frontline communities, social and environmental inequalities are tightly linked and need to be reduced in tandem, work-time reduction is a valid policy for sustaining employment rates when economic growth falters.

The finding that green and left representatives in the European Parliament are more welcoming to the idea that economic growth is not necessarily a desirable goal from a social perspective and that it is even detrimental to progress on sustainability resonates with historical evidence. Sassoon (2010) argues that:

The commitment to growth provided the glue between socialist/communist and pro-capitalist parties in the context of the great post-war consensus for full employment and the funding of the welfare state. The commitment of working class parties to the industrial society, without which they and the working class would not exist, may suggest that there was a massive ideological gap dividing growth-sceptic ecologists from pro-growth socialists. In reality, the two also had much in common. The left was never committed to growth for growth's

sake. Had that been the case, it would never have fought almost regardless of productivity for a shorter working day, a regulated labour market, and higher wages. The essence of the green political ideology has always been that it is necessary to regulate and constrain capitalism in order to impose some goals in the interest of the general public, such as a better environment. Ideologically, this has always been far more acceptable to the left than to the right.

The thesis also presents valuable cross-relevant findings that shed light on the synergies between the three research questions. Firstly, the goal of advancing *social equality* objectives through the green transition acts as an important link for a variety of issues. I find that equality is one of the principles most discussed both in the degrowth and GND literature and it is, therefore, one of the points of convergence that make the idea of a ‘GND without growth’ plausible as a unifying framework. Furthermore, funding the green transition through increases in the progressiveness of the tax system can be justified on the ground that the current distribution of responsibility for greenhouse gas emissions is correlated with wealth (Chancel, 2020) and, therefore, increasing direct taxation is a more egalitarian approach for reducing emissions than indirect taxation, which tends to be regressive (Wang et al., 2016). This policy proposal is supported by another finding presented in the thesis, meaning that reducing inequality is one of the few points of agreements across the whole political spectrum in the European Parliament. This cross-relevant finding is valuable not just to policy makers committed to advancing the cause of a rapid decarbonization, but also a useful contribution to the academic literature on the topic of ‘environmental justice’, which investigates the distribution of costs and benefits resulting from environmental policies across social classes and marginalized racial groups (Martinez-Alier et al., 2016).

The second cross-relevant finding is that proposals for the green transition should be linked to an expansion of *public services and social protection measures*. Such considerations are important for informing policy making since attempts to increase public investments on the green transition by defunding the welfare state are poised to fail. A negative example of this trade-off is provided by the European Green Deal launched by the European Commission in 2020. The

allocated funding for the European Green Deal amounts to one trillion euros for the period 2020-2030, meaning 100 billion euros a year. The European Commission plans to directly fund only 64 billion euros yearly and ask Member States to make up the difference from their national coffers (Eckert & Kovalevska, 2021). However, the Stability and Growth Pact limits the ability of Member States to fund their public budget through deficit spending. Hence, if EU countries are expected to invest more in the green transition but are not able to raise additional finance by issuing sovereign bonds, then in all likelihood there will be cuts in other public expenditures. A zero-sum game between green and welfare expenditures is problematic from the perspective of a 'GND without growth'. As Eckersley (2020) puts it, "if the welfare, environmental, and climate functions of the State are to be thrown into more intensive competition for increasingly scarce budgetary resources, then the social movements seeking to build and legitimate the 'green State' will need to highlight their interdependencies in more systematic and creative ways to minimise trade-offs and loose popular support."

Finally, the combined findings of the central chapters of my thesis clearly point to the need to adopt top-down policies for implementing a 'GND without growth'. While cultural change and localised solidarity economy networks are important for advancing the social transformation heralded by degrowth scholars, the complex challenges presented by a rapid decarbonization trajectory require the adoption of an intricate bundle of policies affecting the fiscal, infrastructural, and trade domains. This tenet of a 'GND without growth' can be defined *economic dirigisme*. Echoing the findings of Cosme et al. (2017), I observe that in spite of the general principles espoused by degrowth scholars, the important policy interventions tend to require the intervention of State authorities and agencies into the economy. A fruitful way for elaborating this apparent contradiction is to frame top-down policies as necessary in order to foster and facilitate bottom-up initiatives. Essentially, it is the strategy of using more State intervention (top-down) in order to empower individual- and community-level initiatives (bottom-up) and to ensure that market forces facilitate the green transition instead of opposing it.

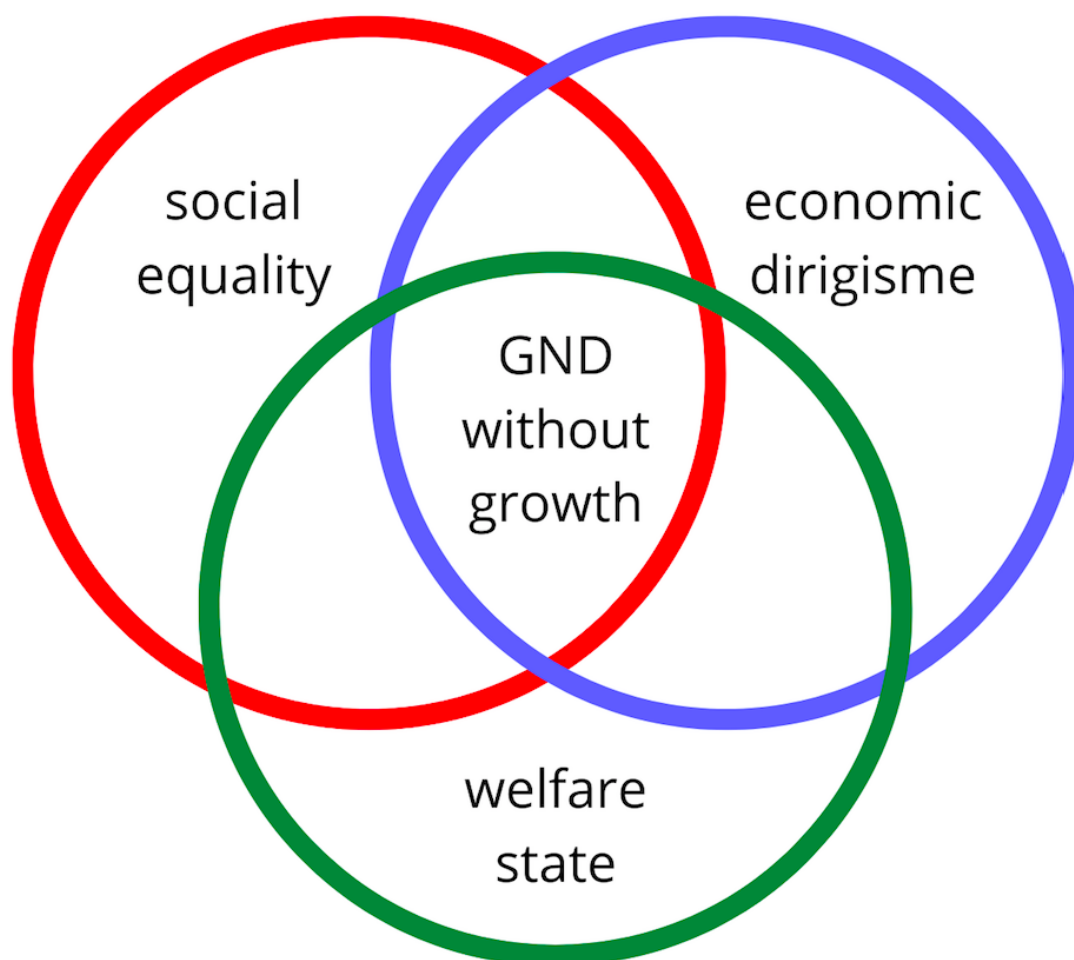


Figure 1. The three tenets of a GND without growth.

GND without growth: what we still need to find out

In this last section of the thesis, I turn my attention to a number of questions that emerged while conducting research on the ‘GND without growth’ framework and that could be explored in-depth in future scholarship.

One key question for future research is the role of the State in the green transition. In the GND discourse the State is seen as essential for rapid decarbonization, especially in its role as regulator of capital when the anarchy of market competition endangers the pursuit of objectives beneficial to the wider population (Sovacool & Dunlap, 2022). The GND is animated by the strategy of wresting control of the State as a means of contesting capital, a strategy grounded in Poulantzas’ view (1978) of the State as relatively autonomous from the ruling class. Eckersley (2020) explains that governments will always have to find ways of managing the inherent tension between the imperatives of capital accumulation and popular legitimation to stay in power: this means maintaining economic growth while also addressing some of the ensuing harmful social and environmental consequences. Samper et al. (2021) use the historical precedents of regulating working time as an example of the relative autonomy of the State from capitalists in establishing social safeguards: limitations to working time were adopted to limit the exploitation of workers and ensure a minimum of social reproduction. Similarly, “the same we can expect from the State to do for the ecological crisis which endangers the survival of humanity and, therefore, of capital itself. This is why the State is—with many contradictions—trying to regulate the workings of capitalism and coordinate an overhaul of the fuels that power it” (Samper et al., 2021).

By contrast, the degrowth literature lacks a clear theorization of the State. D’Alisa and Kallis (2020) argue that those who make degrowth policy proposals address them in a void, without an underlying theory of how, or under what conditions, reforms such as those that they imply could ever be realised. Those who favour alternative, grassroots economic practices or an abolition of the State by a confederation of self-governed and ecologically sufficient communities lack

a clear theory of transformation other than through a collapse after which, for some unexplained reason, political organization will evolve towards their desired configuration. Parrique (2019) envisions the role of the State in a degrowth transition as a dynamic one characterized by two distinct phases: an active role in the beginning of the transition that is to fade away in the long-term as power is being decentralised to the local level. But if an active State is needed to coordinate and finance the ‘GND without growth’, what are the dynamics that can lead to its subsequent withering away in line with many—albeit not all—degrowth scholars’ theorization? Given that institutions carry with them a considerable inertia, how can they be transformed once they are established within a certain framework? If the GND is understood as a ‘transitional programme’—meaning a set of demands made by a movement with the aim of linking the current situation to progress towards its goal—what are the main leverage points for dissolving State institutions and relocalizing decision-making through direct democracy practices as supported by degrowth scholars?

Following from the above considerations, it can be argued that degrowth scholarship would benefit from a more rigorous engagement with the question of how to address large-scale ecological issues through small-scale institutions (e.g. Mocca, 2020; Cattaneo, 2016 Xue, 2014). For instance, degrowth scholars often reference Ostrom’s analysis (1990) of communities successfully managing commons, but usually they operate at a small scale, such as shared water rights between one hundred farmers in a small river basin. As the scale increases, Ostrom finds that nested structures of decision-making are required because direct negotiation between all individuals is impossible. Another term for describing such decision-making structures is ‘hierarchical’. But given that many degrowth scholars prioritize non-statist, non-hierarchical, and horizontal forms of organizations (e.g. Trainer, 2012), the question of how to manage the commons at large (such as the carbon-absorption capacity of the atmosphere in the case of the issue of global heating) needs to be investigated. The possibilities for sensible management of common property resources that exist at one scale do not and cannot carry over to problems such as decarbonizing an energy system that extends beyond the regional level. According to Harvey (2012), “as

we jump scales, so the whole nature of the commons problem and the prospects of finding a solution change dramatically.”

Another issue tightly connected to the one of institutions is the strategy envisioned by degrowth scholars to bring about social change. Mueller (2020) argues that while the climate justice movement is rooted in specific struggles—those of frontline communities fighting against resource extraction, industrial agriculture, and megaprojects—and identifies agents of change, degrowth is not rooted in specific struggles, but rather starts from a conceptual critique, from an idea. From a movement perspective, this lack of a base could be problematic, insofar as it means that the degrowth movement cannot answer the central questions of any social movement: Who would fight for your goals and why? Do these agents have the interest and the capacity to change the existing state of affairs? And if degrowth scholars see in frontline communities the standard bearers for advancing their ideas, this raises another question worth considering: How can a political focus on marginality produce a more broadly based movement for challenging ‘growthism’? How does environmental justice politics build solidarity with the majority of people in the global North who are fully engulfed within the commodity society, but not exposed to any apparent threat of toxic pollution?

Such questions emerge clearly from my analysis of radical ecopolitics in the European Parliament presented in chapter 4. Our analysis points to fertile political ground for a radical discursive coalition around an equity/justice-focussed ‘GND without growth’. However, this coalition, within the left is likely to meet opposition from the right, which is firmly grounded in a pro-growth, pro-market discourse. Focusing on frontline communities, questions of inequality and concrete worker-oriented policies, such as work-time reduction, may instead open up some shared space across the sides of the aisle, but questions arise as to the extent to which such signifiers and policies really do mean the same thing from different ideological standpoints. More importantly, what are the social movements that would be necessary to support the left alliance in achieving their goals against an onslaught by the right?

Moving beyond the topic of State power, this thesis points to further questions about the monetary dimension of a degrowth transition. In chapter 3, I discussed the complex dynamic of public spending in a non-growing economy by engaging with Modern Monetary Theory (MMT). The widespread assumption is that when the government spends, it must either collect taxes or take on debt. This is not a problem in a growing economy as long as the rate of GDP growth is higher than the net rate of return to capital. In such a scenario the debt-to-GDP ratio declines over time, particularly if loans have low interest rates and long maturities (Kelton, 2020). But in a non-growing economy the situation is more complex. MMT postulates that a monetarily sovereign government is never financially constrained and can always print money to cover for budget deficits. The tax revenues and debt ratio thus lose relevance because States with sovereign currencies actually do not need to collect taxes or borrow to finance their expenditures: taxation is used just to keep inflation in check and bond issuance is useful only to provide private investors with safe investment opportunities. From the perspective of MMT, the financing of government spending no longer depends on GDP growth. Governments with monetary sovereignty simply need to care about the real resources available within the economy and ensure that they are 'in balance' with the amount of money in circulation to prevent runaway inflation. The question is not what sovereign governments have the money for, but what they want to use labor and scarce natural resources for. In the light of this theorization, MMT provides valuable insights on how to maintain public spending in a degrowth context.

However, if the government spends money into the economy but GDP does not grow, it entails that there is more money chasing a steady throughput. Thus, the risk of inflation. MMT suggests that a hike in taxation rates can reduce the money supply in circulation and act as a deflationary policy. But a growing tax take in a non-growing economy leads to more and more expropriation of private wealth. Such considerations lead to interesting questions for further research: How is a dynamic of socialization of the economy sustainable in the long term from an economic and political perspective? A socialization of the economy would at

some point lead to dispense with money and organise production and consumption purely in terms of labour, resources, and time in line with ecological economics theory? Such considerations point also to critical questions in terms of political strategy for advancing the degrowth agenda. Arguably, degrowth is politically unpalatable as it is and it could potentially become even more controversial if it were linked to the idea of printing money to support the public budget. Wouldn't it be attacked as irresponsible spending? What would it take to develop a credible and politically defensible position? What politics could support it?

While inflation is an economic dynamic fraught with risks, it can play an important role in making the transition towards a 'GND without growth' possible. Following Kalecki (1971), we can define capitalism as an economic system in which agents must be able to expect positive flows of profit. If there are to be such positive monetary flows over an indefinite time horizon, then there must be positive monetary stocks from which they can be taken. In order for it to be socially stable, other agents' savings must not function as the stocks from which profits can be taken over extended periods of time. Otherwise the economy would turn into a zero-sum game, which would undermine its legitimacy (Douthwaite, 2012). Such condition can be satisfied in a non-growing economy only if there is a continuous rise in nominal GDP without a corresponding rise in real GDP—in other words, inflation. In an inflationary environment, real GDP can shrink while a majority of private capitalists still can reasonably expect to make a nominal profit (Richters & Simoneit, 2017) and, perhaps more importantly, people do not see their nominal incomes decline. Such considerations point to a possible strategy for a degrowth transition in a capitalist system. However, policies should be put in place to shelter the most vulnerable from the distributional impacts of inflation. For instance, inflation raises the cost of living for working class people when wages are not adjusted to inflation while rents are. An important question for further research consists in defining the modalities through which citizens, institutions, and perhaps even particular fractions of the capitalist class could support an explicitly inflationary agenda in the context of a 'GND without growth'.

Finally, in this thesis I present research on views shared by Members of the European Parliament across the political spectrum on key aspects of the green transition: most views agree with the importance of placing the reduction of inequalities, the involvement of marginalized communities, and worker-oriented policies at the center of a GND. A fruitful question for further research is whether different political groups indeed collaborate in actual policy/legislative work in the European Parliament when votes on such elements arise. A methodology for investigating the connection between discourses and actual political networking and legislative practice could start from archival research looking at how MEPs from different political groups have so far voted in the course of the ninth legislature of the European Parliament, inaugurated in July 2019, on several bills related to the framework of a 'GND without growth', such as: the Just Transition Fund, European Strategy for Energy System Integration, or the European Strategy for Hydrogen. Such empirical research on actual policy-making could fruitfully complement the research on opinions presented in chapter 4 of this thesis and examine to what extent, and how, the discourses identified here have 'real life' political implications.

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