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Can We Have Our Cake and Eat It? A Review of the Debate on Green Recovery from the COVID-19 Crisis

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Abstract: As we speed through the development and distribution of a vaccine for the COVID-19 pandemic, economies are suffering through the worst decline of the century while, at the same time, being pushed to comply with global agreements regarding climate change. Because of this, the economic downturn is also seen as an opportunity to speed up the sustainability transition or, in simple terms, to achieve a "green recovery". What can we expect from a green recovery? We address this question by reviewing position documents in the debate between green recovery and its opponent, "quick rebound", in the Netherlands. We apply systems thinking to model causal arguments regarding key concepts comprising green recovery and identify issues of consensus and dissensus. Our findings indicate that green recovery is promising for curbing greenhouse gas emissions and addressing growing socioeconomic inequalities. However, the position of what green recovery means for economic growth, including the development of gross domestic product and employment, is still largely unclear and at times contradictory. While some see tradeoffs, others suggest that economic growth and sustainability goals can be achieved simultaneously. Thus, we conclude by reflecting on the question: Can we have our cake and eat it?

Keywords: COVID-19; green recovery; systems thinking; system dynamics; economic crisis; sustainability transition

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1. Introduction

COVID-19 has shaken up global economies to an extent comparable to the Great Depression [1]. Historically, governments have responded to past economic crises with various measures ranging from austerity to tariff increases. This time, there is large emphasis on worker subsidies and government spending policies. These policies are taking place because the origin of the crisis has been low expenditures and interruptions in production due to strict lockdown measures, whereas other crises such as the Financial crisis of 2007–2008 originated as a banking crisis within the US housing sector. COVID-19 economic recovery policies have significantly boosted government debt levels but are generally not seen as a concern because of historically low inflation [2]. Other than the size of the economic blow, and its global proportion, this economic crisis is special because the concept of environmental sustainability is gaining as much publicity as economic recovery policies themselves [3].

For the first time, there is talk of a "green recovery", and analyses of what the proposed measures mean for environmental stability. Green recovery is an idea that the stagnation of economic activity can be used as an opportunity to restructure the economy and decouple it from its environmental impact [4,5]. For example, subsidies for retrofitting buildings are a green recovery policy since they increase energy efficiency by lowering greenhouse gas emissions and create jobs that boost economic development at the same time. Similar ideas have been argued as early as the 2008 Global financial crisis [6,7]. Then, as now, there was recognition of the unsustainability of our socioeconomic system and its dependance on the

environment [8]. Despite this, it can be said that the popularity of the concept of "green recovery" is unprecedented. This is clearly evidenced through the initiatives for a Green New Deal (US) and the European Green Deal (EU), which are different from the New Deal (US) or the Stability and Growth Pact (EU). These new initiatives are aimed at addressing the COVID-19 economic crisis, while at the same time continuing, or even accelerating, efforts to implement the Paris agreement.

Not everyone agrees with the idea of a green recovery, however, and the notion has become the topic of a debate [9]. Some are critical of the concept because they see climate action as a luxury we cannot afford to entertain in a pandemic [10]. In developed and developing countries alike, there is concern over the loss of jobs and general prosperity, which are seen as of higher priority than environmental health [11,12]. This does not mean that this side of the debate negates the need for a sustainability transition; rather, they emphasize the need for a "quick rebound"—one which will get the economy back on its feet as fast as possible and would thus enable a sustainability transition to take place as a result of economic recovery. The lack of consensus on the potential of green recovery is interesting and motivates our research on the reasons that the various parties use to come to their position. Accordingly, our research question is: "What are the expected consequences of a green recovery from the COVID-19 crisis"?

We previously engaged in a study that summarized this debate specific to the Netherlands with recommendations for Dutch infrastructure companies [9]. The objective of the current paper is wider, as we aim to analyze the argumentation about the mechanisms of economic recovery as they relate to the sustainability transition. These concepts are complex and hard to think about intuitively [13] since the processes describing both economic recovery and climate change tend to include time delays, nonlinearity, and feedback mechanisms [14]. We apply a systems thinking approach that puts exactly these characteristics at the central stage. Systems thinking is a powerful way of visualizing logical argumentation and is useful for making inferences, including some that may be missed or appear counterintuitive using a linear approach [15]. Elucidating these causal mechanisms is relevant, because it helps with identifying logical inconsistencies and deriving policy implications [16].

The remainder of this paper is structured as follows. In Section 2, we provide background on the impact that earlier crises have had on economic growth and environmental impact. In Section 3, we discuss the selection of position papers, and our systems analysis. Section 4 uses causal loop diagrams to provide a visual representation of the key concepts in the debate. In Section 5, we discuss the implications of our review for the relation between green recovery and economic growth.

2. Background

There is no generalizable understanding of what economic crises mean for environmental sustainability. Historically, there were some efforts to green the recovery from the 2008 Global Financial crisis, but their impact was very limited as they failed to structure long-term support to sustainability initiatives [17,18]. Falcone and Sica [17] have conducted a case study of the Italian biofuel sector and found that the economic crisis has had adverse effects on the development of this sector. However, some show that green recovery policies in 2008 helped to create jobs, which suggests the potential economic benefits of climate action during the ongoing COVID-19 crisis [18,19]. Further, Maxim and Zander [20] tested out different green tax policies in a simulation model and found that all are very promising for lowering emissions and increasing gross domestic product (GDP) and employment.

Elliott [21] analyzed the impact of the Asian 1997 crisis and 2008 Global financial crisis and concluded that their effect on the environment is counterintuitive because it starts out being positive only to end up being negative. This transition into a negative effect is partly explained by an increased pressure on the environment because of lowered economic output from the crisis, which results in further environmental degradation either in legal or illegal ways [22]. Consequently, the arising environmental crisis and apparent

negative effects of economic crises make a strong case for green recovery: the economic and environmental crisis need to be tackled collectively through strong policy frameworks. This approach is also stressed during the current crisis because of the environment of rising socioeconomic inequalities and environmental degradation caused by neoliberal philosophies which put markets over the state [23].

This situation is even more urgent for low-income countries because they are more vulnerable to climate change [24] and calls for policies that address both the economic and environmental crisis [25]. However, financial crises are associated with significant increases in the extreme poor in low-income countries [26]. Additionally, there is a lack of available financing [11] to address the crisis in developing countries, and the UN has warned that 55 countries are expected to face food insecurity [27]. This makes a strong case for quick rebound, as not all can afford to invest in green recovery when there is a humanitarian crisis going on at the same time.

This is not solely the issue of whether recovery policies are green or not. The process of arriving at and implementing policies is just as important. Several sources note this finding based on past crises. For example, a case study comparing Latvia and Iceland [28] found that differences in political collaboration can be used to explain differences in the courses of sustainability transition attempts. Political collaboration refers both to coordination between public institutions and between the public and the government. Further, Yurtsever [29] found that collaboration is critical for the pace of economic recovery, especially in monetary unions such as the Eurozone. The argument here is that the level of collaboration can make or break attempts of a socioeconomic transition, which are necessary to overcome an economic crisis.

In addition to this, public awareness is crucial as it steers both public and private investment. Obani and Gupta [30] found that societal emphasis on green recovery has been reduced during economic crises because it was seen as wishful thinking that is detrimental to economic recovery. During the ongoing COVID-19 crisis, public awareness of environmental topics, such as pollution and climate change, has been reduced, but awareness for local natural resources, such as access to green spaces and biodiversity, has increased. Rousseau and Deschact interpreted these findings in light of dramatic changes in lifestyle brought about as a result of the pandemic. Specifically, there has been a reduction of mobility, which has increased use of local green spaces, and an increase in media attention on COVID-19, which has subsequently reduced media coverage of climate change [31].

We can conclude that, while there is an urgent call to invest in a green recovery from the COVID-19 crisis, it is far from obvious that both economic recovery and improved sustainability can simultaneously be achieved. To better understand the opportunities and risks associated with engaging in a green recovery, this paper provides a review of the different lines of argumentation that are presented in this debate.

3. Materials and Methods

This article is a follow-up to a study focused on implications of the green recovery debate for Dutch infrastructure operators [9]. That study, however, proved to have broader relevance, which led us to write about the broader consequences of green recovery.

The underlying material remains the same: in order to obtain a nuanced overview of the lines of reasoning in this debate, we collected position papers and other reports, forming an inventory of 105 documents (available as Supplementary Material). The data collection period lasted from 5 October 2020 to 26 October 2020. During this period, we visited the websites of known Dutch and international experts including governmental agencies, intergovernmental agencies, nongovernmental organizations, think-tanks, and private companies within the media and consulting industry and checked to see whether they had any publications covering the economic recovery debate for COVID-19. Our aim was to create an inventory of documents representative of as many diverse opinions as possible. In order to do that, and at the same time manage our risk of bias, we checked to

see if we had missed any data by looking at the first 10 pages of Google search results on the keywords "COVID-19 economic recovery" and "COVID-19 green recovery" and consulted with representatives from a consortium of Dutch infrastructure sector representatives to identify any extra documents that we may have missed.

Then, we did content analysis one document at a time, purposively choosing documents that reflect diverse perspectives, until reaching saturation as no new concepts emerged from the documents. This led us to analyze a total of 16 documents (summaries of content analyses are available as Supplementary Material). Each document was analyzed by converting its main arguments into causal word-and-arrow diagrams, either causal loop or stock-and-flow diagrams [32–35]. These diagrams are particularly suited for representing feedback loops, accumulations, and nonlinearities [36]; thus, they are representative of the dynamics that may arise from interconnections between key concepts. The process of conversion is based on grounded theory, with the addition that textual statements are translated into causal relationships [37,38]. The resulting models then provide a holistic overview of implicit and explicit causal relationships in the document, which is useful for analyzing the various lines of argumentation and identifying their commonalities and differences [39].

After analyzing each document separately, we induced common emerging themes in the data. Using these themes as a focal point, we engaged in cross-document analysis. Specifically, we analyzed the data collectively in two different ways: (1) model-based deduction for identifying aggregate causal arguments and (2) text-based induction for identifying issues of consensus and dissensus (see Table 1). For the purpose of model-based deduction, we collected all model structures (with specific emphasis on feedback loops as sources of endogenous dynamics) that connect to a given theme (Step 1) and then aggregated their causal logic into causal loop diagrams for each theme (Step 2). This allowed us to have an overview of the main arguments for each theme in the form of a causal loop diagram (Output), while, for the purpose of text-based induction, we created statements for each theme (Step 1) and then went back to the source data to induce the implicit or explicit position of all documents (Step 2), forming tables of document positions on each theme (Output).

Table 1. Description of parallel data analysis processes according to steps and output.

Process	Model-Based Deduction	Text-Based Induction
Step 1	Code model feedback loops to themes	Create statements based on themes
Step 2	Aggregate causal arguments	Induce document position on statements
Output	Causal loop diagrams	Tables of document positions

This method of cross-document analysis is original and complementary to the established method. Specifically, the main difference underlies the output of the process. While Kim and Andersen [33] ended up with a single model representative of the system structure, we created multiple aggregate models, which are not necessarily consistent. Thus, they complement issues of dissensus, which also are not consistent. Conclusively, we were able to highlight issues of consensus and dissensus using text-based analysis and discuss their reasoning through causal argumentation using model-based analysis.

4. Results

Five topics related to the effects of green recovery emerged from analyzing the debate between "quick rebound" and "green recovery". They denote common themes across documents as each topic needed to be present in at least a quarter of the documents in order to be included. All topics are considered key factors affecting the consequences of green growth. We present the findings for each topic separately and reflect on their implications in the discussion.

Tables 2–6 showcase issues of consensus and dissensus in each of the identified themes. Generally, there is much common ground in the debate between "green recovery" and "quick rebound". There is wide consensus that investments must continue as the main tool for economic recovery, with few organizations criticizing existing government policies for their shortcomings in promoting sustainability and inclusivity. The largest differences between position papers occur because most sources cover only an aspect of the debate (see Appendix A for topic coverage).

Table 2. Table of document positions on statements related to resilience.

Statement	Agreement	Disagreement	Not Discussed
There should be focus on building resilience to future shocks	[3,5,40–48]	N/A	[4,49–52]
Shorter supply chains have a positive effect on economic resilience	[3,40,44,48, 50]	[41,45]	[4,5,42,46,47,49,51–53]

Table 3. Table of document positions on statements related to behavior shift.

Statement	Agreement	Disagreement	Not Discussed
Post-COVID-19 consumer behavior shift is uncertain	[3,4,44,48–51]	[42]	[5,40,41,43,45–48,52]

Table 4. Table of document positions on statements related to human capital.

Statement	Agreement	Disagreement	Not Discussed
Green recovery will create jobs, possibly more than quick rebound	[3,5,43–45,51]	N/A	[4,40–42,46–50,52]
The crisis has a negative effect on productivity, which is difficult to overcome in the future	[41,50]	[3,40,43–45]	[4,5,42,46–49,51,52]
Investment in human capital is key to economic recovery	[3,41,42,44,46–48,50,51]	N/A	[4,5,40,43,45,49,52]

Table 5. Table of document positions on statements related to models of growth.

Statement	Agreement	Disagreement	Not Discussed
Investment in innovation is important for economic recovery	[3,5,40,42,44,46,51]	N/A	[4,41,43,45–49,52]
Recovery should be focused on wellbeing metrics rather than GDP	[3,42,46,47]	N/A	[4,5,40,41,43–45,48–52]
Anticipated post-COVID GDP development will be the same or worse than pre-COVID GDP	[4,41–43]	[40,44,45]	[3,5,42,46–49,51,52]

Table 6. Table of document positions on statements related to inclusivity.

Statement	Agreement	Disagreement	Not Discussed
It is important to have inclusive accessible policies	[3,5,41,42,44,46–48,51,52]	N/A	[4,40,43,45,49,50]

Figures 1–5 are causal loop diagrams. Each arrow denotes a causal link between two of the variables. Causal links are read according to their polarity, which is either positive (+) or negative (−), so that a positive polarity link means that variables move in the same direction while a negative link means that they move in the opposite direction (see Appendix A for all causal links). For example, the link from "Ecological footprint" to "Likelihood of environmental shocks" (Figure 1) is read as follows: "a larger ecological footprint increases the likelihood of environmental shocks" or "a lower ecological footprint decreases the likelihood of environmental shocks". In addition, these diagrams contain feedback loops, which are closed chains of causal relations that start and end with a change in the same variable. They can be reinforcing, where a variable reinforces itself through the other variables; or balancing, where a variable drives itself up to a point of equilibrium. As an example, B2 (Figure 2) is a balancing loop and is read as follows: "As economic prosperity decreases, the duration of support packages increases, which brings economic prosperity back up again".

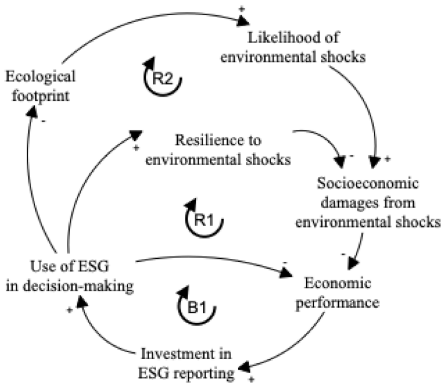

Figure 1. Environmental, social, and governance (ESG) decision making is a leverage for shifting focus from short-term to long-term economic performance.

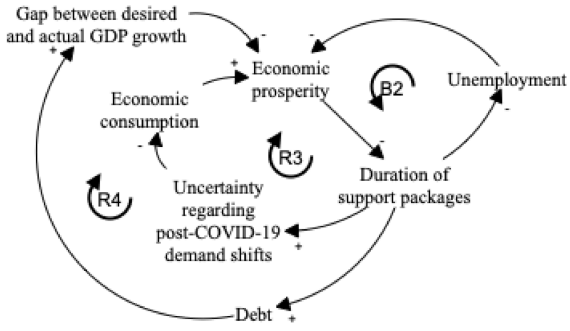

Figure 2. Economic support packages can be detrimental due to increased uncertainty regarding post-COVID-19 demand shifts.

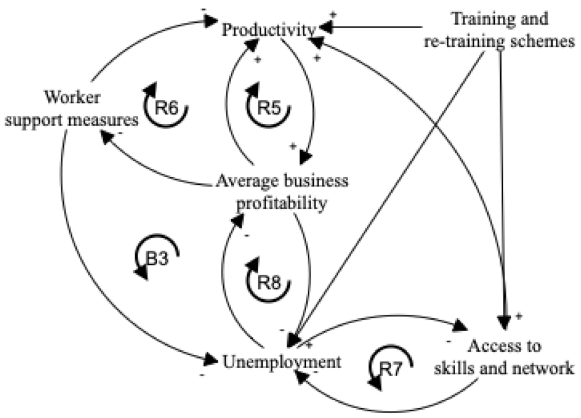

Figure 3. Human capital can drive economic recovery through training and retraining.

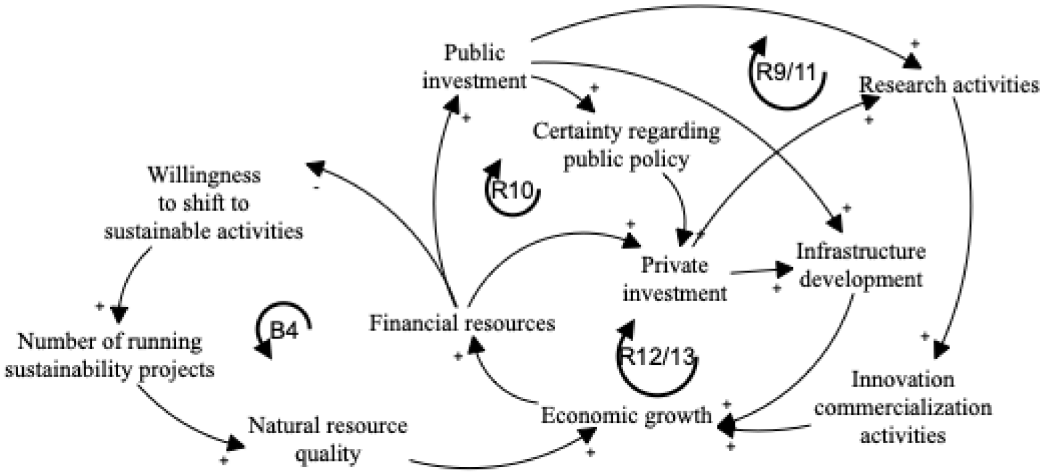

Figure 4. Models of growth based on social, human, and natural capital.

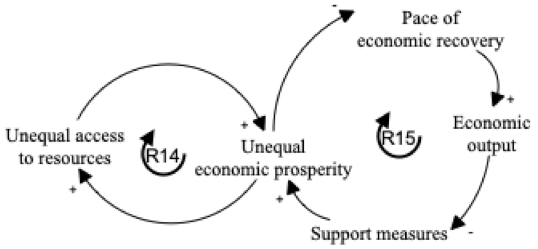

Figure 5. Infrastructure can break the vicious inequality cycle.

4.1. Resilience

There is widespread agreement on the importance of shaping economic policy in a way that boosts resilience to future environmental shocks (see Table 2). However, there is dissensus regarding the way to do that. Some documents state that shortening supply chains improves economic resilience, while others argue that local producers can fail just as well and that diversifying supply chains is a better way to boost resilience. In addition to this, some documents stress that digitalization has a positive effect on boosting resilience [40,41].

The environmental crisis necessitates the distinguishment between two key concepts: likelihood of environmental shocks and resilience to environmental shocks. This is echoed in efforts for climate change mitigation and adaptation. Both affect economic performance through socioeconomic damages from environmental shocks and can be leveraged by

changing the decision-making system within organizations (see Figure 1). A shift to environmental, social, and governance (ESG) decision making, as opposed to decision making centered around economic benefit, can both reduce organizational ecological footprints [3], thereby decreasing the likelihood of future shocks, and boost resilience to future environmental shocks (R1) [42]. Importantly, because of its lack of emphasis on economic performance, ESG decision making has a short-term negative effect on economic performance and may thus slow down its adoption (B1). However, despite this negative effect, ESG decision making is argued to have a positive long-term effect on economic performance because of its ability to mitigate environmental shocks (R2).

4.2. Behavior Shift

The largest unknown regarding this crisis is post-COVID-19 behavior shifts (see Figure 2). Hence, consumer behavior shifts are classified as uncertain by many documents (see Table 3). The World Economic Forum is in disagreement of this as they rely on early post-first-wave data to show that consumer behaviors are likely to return to pre-COVID-19 patterns [42]. A consumer behavior shift was also anticipated during the 2008 Global Financial crisis [53] whereby consumers were expected to shift to more environmentally sustainable purchases. Other than changes in goods consumption, there have also been changes in global trade, mobility, and energy demand. These demand shifts lower economic prosperity through decreased economic output and increased debt level (R4) [4,44]. Despite their well-meaning intentions (B2), governmental support packages are only said to increase uncertainty since they maintain the status quo, decreasing consumer confidence and calling for even more support packages (R3) [45].

4.3. Human Capital

The crisis has been detrimental to business profitability (R6) and has thus increased unemployment, which is reinforced through the loss of access to skills and network (see R7 in Figure 3). In light of this, there is no disagreement to the statement that green recovery policies will create jobs (see Table 4). Some documents go as far as stating that green recovery will create even more jobs than quick rebound [46,47]. Additionally, retraining policies are advanced as extremely important with any job creation policy. There is a call for a shift from firm-specific retraining policies to general continuous education policies, prioritizing policies for human capital development for the entire labor force, including during periods of unemployment.

On the other hand, there is some dissensus regarding the development of productivity. Some optimistic sources posit that productivity can be a driver of growth if there are investments in innovation [40,48], disagreeing with the pessimistic view that productivity will be crippled in the medium term because of the crisis [41,45]. In other words, innovation and retraining schemes boost productivity, thus reinforcing human activity (R5) as opposed to worker support measures (e.g., furlough), which are found to decrease productivity (R6), but ultimately balance out their negative effect on productivity through reduced unemployment (B3). All in all, investment in human capital is stressed as important by almost all documents.

4.4. Models of Growth

Most sources discussing GDP development agreed that post-crisis GDP development will remain the same or worse than pre-crisis GDP (see Table 5). On the other hand, some optimistic sources predict that post-crisis GDP can be significantly larger if there are structural shifts in the economy, which would help to address public debt [40,49].

The current model of economic growth is largely based on investments as a way of increasing financial resources beyond the time value of money. Further, economic growth can be intensified through a synergy between public and private investment (see R10 in Figure 4). Specifically, public investments in green energy create a sense of long-term certainty, which reinforces private investment. Some of this investment is toward research

activities, which drive innovation development and digitalization, ultimately boosting economic growth. In fact, about half the documents stress the importance of investment in innovation as the only way GDP growth can come to its desired levels (R9 and R11). Alternatively, growth can be driven though investments in infrastructure developments that set the stage for economic growth (R12 and R13).

Unfortunately, much of historic economic growth has exploited natural resources to an unsustainable level. While it is clear that environmentally destructive activities benefit the economy, many documents point toward the benefits of environmentally conservative activities for the economy. Thus, natural resources and economic capital are interdependent in a symbiotic relationship.

The economic crisis is characterized by a larger willingness to shift to sustainable activities if financial capital is granted under "green" conditions. As an example, many businesses are facing lower financial resources, which increases their willingness to make a shift to sustainable activities if that is a condition for them to get financial support. Such a shift, in turn, can restore natural resource quality and address this environmental limit to growth (B4). Both private and public investors during this crisis are key to steering economic activity in a direction that maintains or improves natural resource quality or one that deteriorates it [5]. On the other side of the debate, there are proposals for new models of growth. A quarter of the documents propose a shift from GDP to other wellbeing metrics for recovery investments [50,51]. This goes beyond the idea of decoupling economic growth from climate change to an economy based on wellbeing that bases growth on digital innovation and human capital development.

4.5. Inclusivity

The pandemic has widened the gap between social groups as the poor and vulnerable have been more adversely affected. Similarly to unemployment, inequality is reinforced by unequal access to resources (see R14 in Figure 5.) [52,53]. One of the consequences of inequality is a slower pace of economic recovery, since the vulnerable have a harder time getting back on track and thus require more support measures. Unfortunately, most governmental support measures so far have not been structured on inclusivity principles. Thus, it can be said that they are only further driving inequality (R15). Not all documents discuss inclusivity, but those that do have a strong opinion that recovery policies should be designed to be inclusive (see Table 6).

5. Conclusions and Discussion

Unlike past economic crises, the ongoing COVID-19 crisis is accompanied by a call for green recovery: a call to action for climate change [54], biodiversity [55], and a general sustainability transition. Therefore, there is a debate around whether (i) sustainability transition efforts should be continued and even intensified (green recovery) or (ii) should be paused, and funds should be spent on getting the economy back on its feet (quick rebound). Our study reviewed this debate in order to identify expected consequences of green recovery. We found that the debate revolved around five main topics: resilience, behavior shift, human capital, models of growth, and inclusivity.

5.1. Debate Summary

We found a broad consensus that green recovery is critical to making substantial progress toward the established climate goals [4]. In addition, there is consensus that green recovery would facilitate the creation of new jobs, with some arguments that the total number of jobs would be higher in the case of green recovery compared to quick rebound [47]. Green recovery policies would also have a positive effect on socioeconomic inequalities through an inclusivity principle that targets the vulnerable [51]. An example of this can be investing in infrastructure for the vulnerable, which may have a lower economic return but will contribute to equalizing access to resources.

We found different consequences for policies that focus on supporting existing jobs and policies that are aimed at innovation and new jobs. Worker support measures endure uncertainty about shifts in behavior by maintaining the status quo, while investments in innovation and retraining programs have a longer-term perspective by helping employees and industry to become more future-proof.

There is no consensus on the future development of global trade. Some argue that resilience could and should be improved by focusing on more local supply chains. Others warn that local supply chains also remain vulnerable and warn against the downsides of barriers to global trade. This is echoed in the real world where we can see both tariff policies and trade openness evidenced through the establishment of the largest economic union—the Reginal Comprehensive Economic Partnership [56]. Wang and Wang [57] have confirmed the importance of trade openness and urge for more energy efficiency policies, while WEF [41] gives ideas that advances in digitalization may pave the way toward global economic convergence as companies get more comfortable with remote work and reinforce the trend of offshoring white-collar labor.

The fact that most documents are in agreement regarding the job creation potential of green recovery illuminates a contradiction in their arguments regarding what green recovery would mean for GDP development. While some posit that green recovery would contribute to GDP, others call for a shift to a wellbeing economy through the abandonment of GDP as a decision-making metric. It is unclear whether green recovery would boost financial performance by decoupling economic activity from its ecological footprint or whether it would facilitate a shift to ESG metrics and entertain reduced financial performance. UNEP [15] and Maxim and Zander [20] advocate the former while Elliott [21], Geels [22], and Falcone and Sica [17] stand witness to the latter. We are left with the question: Is green growth an oxymoron?

5.2. Knowledge Contribution

Looking back on past research, Oprean-Stan, Oncioiu, Iuga and Stan [58] showed that the publication of nonfinancial metrics has a positive impact on traditional performance indicators such as return on assets. In fact, investments in renewables have fared better in the current crisis than investments in nonrenewables [4]. Mukanjari and Sterner [59] confirmed this finding and added that environmental performance, as an ESG variable, is an even better explanation for this than carbon intensity.

However, they also posited that official ESG "climate change policy" has had no effect on firm performance during the crisis as they elaborated that investors may be looking at other metrics when making decisions. These findings are in line with the causal argumentation that ESG-based decision-making benefits long-term performance through increasing resilience. Specifically, despite this initial negative effect on financial performance, ESG decision making is argued to have a positive long-term effect on performance because of its ability to mitigate and adapt to environmental shocks [3,42]. In other words, shifting from profit maximization to a broader set of indicators helps to increase resilience, which may result in lower economic growth in the short term and higher economic growth in the long term.

Earlier studies on the relation between crisis recovery and environmental impact stress the relevance of collaboration [28,29] and public awareness [30,31]. The many position papers on the topic of green recovery (we had little trouble identifying 105 of them) signal a growing awareness of sustainability issues. Some of the papers also underscore the relevance of collaboration, mainly through noting the need for combined public and private investments in innovation and retraining.

5.3. Concluding Remarks

To conclude, we started this study by addressing the debate of "quick rebound" versus "green recovery" but, contrary to our expectation, we found there was no real debate going on as most sources praised green recovery. Instead, we found that there is a debate within

the area of green recovery itself. The debate within green recovery concerns whether green recovery simply means green growth or a fundamental restructuring of our socioeconomic system to focus on wellbeing rather than growth. If one adopts the former as the concept of green recovery, then "quick rebound" and "green recovery" are really one and the same as they both focus on job creation and economic growth. However, if we are to adopt the latter as the definition of green recovery, then some serious thought needs to be given regarding whether absolute decoupling is truly possible with an economic growth narrative. Authors have noted that many decision makers are prone to subscribing to a decoupling delusion as there are faults within the ways we currently calculate decoupling such as masking efficiency gains to look like decoupling [60] or shifting ecological footprints onto poorer nations [61]. We too came to the same conclusion through our systems analysis as we noticed the contradiction between economic growth on the one hand and sustainability transition on the other. Thus, this development in thinking marks our biggest takeaway. We hope that our study hereby contributes to an even stronger base for collaboration and more critical thinking about the ways in which we can or cannot both increase economic prosperity and environmental quality.

5.4. Study Limitations and Recommendations for Future Work

Our study looked at a very wide debate using qualitative systems methods. While this is our study's greatest strength given systems methodologies' ability to enable holistic analyses stemming from the interconnections between key concepts, it is also a great limitation. We suggest future research to untangle under what circumstances COVID-19 economic recovery policies and the sustainability transition mutually benefit one another and under what conditions they hinder one another. While our study was general, looking at specific situations is important in order to understand whether and why economic recovery and the sustainability transition can or cannot be achieved simultaneously in different contexts. Following the example of Vivid Economics [62], who have created a Greenness of Stimulus Index, scholarly research can examine public policies set in different contexts by analyzing their ability to bring about true eco-economic decoupling or unanticipated trade-offs on measurables other than gross economic product.

Supplementary Materials: The inventory of all of the documents we collected and summaries of the content analysis of each of the reviewed documents are available online at https://www.mdpi.com/2071-1050/13/2/874/s1.

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Data Availability Statement: The documents reviewed in this study are all publicly available.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1 represents an overview of topic coverage per document. Specifically, a document is characterized as having covered a topic if content analysis (content analysis summaries are available from the authors) contributed to the creation of the causal loop diagrams (Figures 1–5) presented in the results section. Table A2 lists all of the causal links found within these diagrams and the references the sources within which support is found for the causal link. Readers are encouraged to identify whether a document covers a topic

in Table A1 and then see the document's causal arguments regarding the topic by finding for which causal link the document is referenced.

Table A1. Topics covered in each document. Grey signifies that a topic is covered.

Source	Resilience	Behavior Shift	Human Capital	Models of Growth	Inclusivity
[3]					
[4]					
[5]					
[40]					
[41]					
[42]					
[43]					
[44]					
[45]					
[46]					
[47]					
[48]					
[49]					
[50]					
[51]					
[52]					

Table A2. A list of all causal links with their polarity and sourcing documents.

Causal Link	Polarity	Reference
Likelihood of environmental shocks -> Socioeconomic damages from environmental shocks	+	[3,4,46]
Socioeconomic damages from environmental shocks -> Economic performance	–	[3,5,40,41,44]
Economic performance -> Investment in ESG reporting	+	[3,42,46,47]
Investment in ESG reporting -> Use of ESG-based decision making	+	[42,46]
Use of ESG-based decision making -> Resilience to environmental shock	+	[42,44,46,48]
Resilience to environmental shock -> Socioeconomic damages from environmental shock	+	[3,5,40,41,44]
Use of ESG-based decision making -> Ecological footprint	–	[42,46]
Ecological footprint -> Likelihood of environmental shocks	+	[3,4]
Use of ESG-based decision making -> Economic performance	–	[42,46]
Economic prosperity -> Duration of support packages	–	[3,40,41]
Duration of support packages -> Unemployment	–	[40,41]
Unemployment -> Economic prosperity	–	[5,40–42,50]
Duration of support packages -> Debt	+	[41,51]
Debt -> Gap between desired and actual GDP growth	+	[40,50]
Gap between desired and actual GDP -> Economic prosperity	–	[40,50]
Duration of support packages -> Uncertainty regarding post-COVID-19 demand shifts	+	[41,45,47,50]
Uncertainty regarding post-COVID-19 demand shifts -> Economic consumption	–	[4,41,47,50]
Economic consumption -> Economic prosperity	+	[40,46,47]

Table A2. *Cont.*

Causal Link	Polarity	Reference
Average business profitability -> Unemployment	–	[5,40,41,50]
Unemployment -> Average business profitability	–	[5,40–42,50]
Average business profitability -> Productivity	+	[40,43]
Productivity -> Average business profitability	+	[40,42,43]
Average business profitability -> Worker support measures	–	[3,40,41]
Worker support measures -> Productivity	–	[40,41,50]
Worker support measures -> Unemployment	–	[40,41]
Unemployment -> Access to skills and network	–	[40,47,50]
Access to skills and network -> Unemployment	–	[42,47,50]
Access to skills and network -> Productivity	+	[42,50]
Training and retraining schemes -> Unemployment	–	[42,46,50]
Training and retraining schemes -> Access to skills and network	+	[42,46,50]
Training and retraining schemes -> Productivity	+	[42,43,46,50]
Public investment -> Research activities	+	[40,42]
Research activities -> Innovation commercialization activities	+	[40,42]
Innovation commercialization activities -> Economic growth	+	[40,42]
Economic growth -> Financial resources	+	[43,45,46,49,50]
Financial resources -> Public investment	+	[40–42,52]
Public investment -> Infrastructure development	+	[42,43,45,46]
Infrastructure development -> Economic growth	+	[42–45,49]
Public investment > Certainty regarding public policy	+	[5,41]
Certainty regarding public policy -> Private investment	+	[5,51]
Private investment -> Research activities	+	[40,42]
Private investment -> Infrastructure development	+	[42,43,45,49]
Financial resources -> Private investment	+	[40,42]
Financial resources -> Willingness to shift to sustainable activities	–	[5,51]
Willingness to shift to sustainable activities -> Number of running sustainability projects	+	[3,51]
Number of running sustainability projects -> Natural resource quality	+	[3,42,44,51]
Natural resource quality -> Economic growth	+	[3,44,51]
Unequal economic prosperity -> Unequal access to resources	+	[40,42,50]
Unequal access to resources -> Unequal economic prosperity	+	[41,48,52]
Unequal economic prosperity -> Pace of economic recovery	–	[5,41]
Pace of economic recovery -> Economic output	+	[41,44,46,49]
Economic output -> Support measures	–	[3,40,41]
Support measures -> Unequal economic prosperity	+	[41,47]

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