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RESEARCH ARTICLE

THE INTERCONNECTION BETWEEN ECOLOGY AND DIRECT DEMOCRACY IN ALTERNATIVE FOOD NETWORKS

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ABSTRACT

The literature of Alternative Food Networks has engaged with ecological practices as well as decision-making. Nevertheless, it usually approaches ecology and democracy in Alternative Food Networks separately or as a sum of good practices, thus neglecting their interaction. The present article proposes a holistic approach of these practices under the lens of degrowth and post-development. Ecology and democracy are at the epicenter of degrowth and post-development discourse which offer a coherent framework to study social change. Based on the data drawn from a field survey including 43 semi-structured interviews with members of 13 Alternative Food Networks and a nine-month participant observation in the city of Thessaloniki, Greece, the article studies the interplay between ecological practices and direct democratic decision-making. The study brings to the foreground the way Alternative Food Networks negotiate environmental sustainability as well as the complementarities and conflicts between their different goals and strategies. Consequently, it highlights the need for incorporating holistic discourses such as degrowth and post-development into the study of Alternative Food Networks.

KEYWORDS: Alternative Food Networks, autonomy, degrowth, democracy, ecology, post-development

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1. Introduction

Discussion on Alternative Food Networks (AFNs) has been going on for more than 20 years. According to Renting, Marsden, and Banks (2003, 394) AFNs are 'networks of producers, consumers and other actors that embody alternatives to the more standardized industrial mode of food supply'. Previous research mainly focused on the distribution of organic, local, and fair trade products via these networks, while during the last decade relative research has taken into consideration a wide range of goals and practices in different types of AFNs. This wide range involves democratic decision-making which gains more and more attention, especially in research focusing on AFNs in Southern Europe (Lekakis and Forno 2019).

Despite the focus on different goals, strategies and practices in AFNs, research rarely dwells on the interactions among them. Thus, notions such as sustainability are approached in a fragmented way, neglecting interconnections and conflicts among the goals of AFNs (Forssell and Lankoski 2015). Consequently, researchers have called for more holistic approaches to shed light on different aspects regarding AFNs' operation and their interplay (Michel-Villarreal, Hingley, Canavari, and Bregoli 2019). Furthermore, fragmented approaches have resulted in a relative confusion and vagueness regarding the way knowledge, learning, participation, and reconsideration/questioning affect democratic procedures as well as regarding their relation to specific forms of democracy (Grasseni 2014; Lohest, Bauler, Sureau, Van Mol, and Achten 2019; Papaoikonomou and Alarcón 2017).

The current article turns to degrowth and post-development, as well as to Castoriadis's work that connects ecology, direct democracy and autonomy through the notion of self-limitation, to adopt a holistic approach in examining the interactions between ecology and democracy in AFNs, since ecology and democracy are fully embedded in these discourses[1]. Degrowth and post-development focus on social change through adjustment of the development paradigm, thus referring to a multitude of relative goals and strategies. This way they could offer a suitable framework for analyzing in a holistic way the different aspects of AFNs' operation incorporating aspirations for social change. In particular, Castoriadis's analysis, which has inspired both the discourses, connects ecology with direct democracy and autonomy in a specific way, through acknowledging that an autonomous society is based on self-limitation and at the same time self-limitation is a *sine qua non* term of ecology.

We analyze ecological practices and decision-making procedures in different kinds of AFNs, which are active in the city of Thessaloniki. We are posing the following questions as the core subject of our research: How does the goal of environmental sustainability interact with democratic decision-making in AFNs? Which challenges, limitations and conflicts arise along this interaction? The research finds that the examined AFNs approach environmental sustainability in a way analogous to degrowth and post-development discourses by focusing on the renegotiation of cultural norms, institutions, and even epistemological considerations instead of relying solely on the use of science and technology. During this process the complementarities and conflicts

[1] Following Escobar (2015), we refer to degrowth and post-development as "discourses", placing them within the larger context of "transition discourses", calling for ecological and civilizational transitions. We prefer referring to them as "discourses" than "theories", since they both draw from the postcolonial studies on development discourse, where discourse, following Foucault's analysis, is defined as "systems of thoughts composed of ideas, attitudes, courses of action, beliefs, and practices that systematically construct the subjects and the worlds of which they speak" (Lessa 2006, 285), while simultaneously try to construct alternatives to the development discourse.

between different goals become obvious, including the limitations that economic viability poses to ecological practices. Therefore, the results of this research point to the adoption of holistic frameworks, such as the ones of degrowth and post-development, when engaging with goals, strategies, and practices of AFNs.

In the next section we review the literature regarding ecological practices in AFNs. In section 3 we present the theoretical framework regarding degrowth and post-development and the way ecology and democracy are negotiated in these discourses. In the end of the section we present Castoriadis' work on direct democracy, a concept crucial for both discourses. In section 4 we describe the research design and methods, while in section 5 we analyze and discuss the results of our empirical research. Specifically, we first present ecological views and practices and decision-making procedures in AFNs, followed by examining their interconnection, including the conflicts, limitations and challenges that arise. The final section concludes with the implications of our findings for AFNs' research.

2. Ecological practices in AFNs

The notions of environmental sustainability and ecology (though not always explicitly mentioned) have been central to the discussion regarding AFNs since its beginning. Nevertheless, most of the research on AFNs during the first decade of the 21st century has mainly focused on two prominent practices and their underlying values: the production and distribution of local and organic products (e.g., Guthman 2003; Hinrichs 2000, 2003), leaving aside other ecological practices. The distribution of local and organic products has been thought as potentially contributing to sustainability, though *a priori* consideration of these practices as more sustainable has been criticized (Born and Purcell 2006; Forssell and Lankoski 2015; Hedberg 2015). Furthermore, changes in consumer patterns and in producer-consumer relationships gained considerably more attention than changes in collective practices. Nonetheless, the issue of "collectivity" has been placed on the epicenter by several researches, focusing on participation (Cone and Myhre 2000) and on participants' profile (Guthman 2003; Slocum 2006; Hinrichs 2000; Goodman 2000).

During the last decade, researchers have responded to the call for placing a greater emphasis on heterogeneity (Morris and Kirwan 2011), focusing on the differentiation regarding forms, strategies and practices of AFNs, including ecological practices. Ecological concerns have been expanded so to include the seasonality of products, food packaging as well as total energy and resource use in the production and distribution of products (Dal Gobbo and Forno 2020; Forno, Grasseni, and Signori 2015; Forssell and Lankoski 2015; Lutz and Schachinger 2013). Changes in meat consumption and food waste have also been studied (Forno *et al.* 2015; Forssell and Lankoski 2015), though to a lesser extent. Even fair trade products' environmental sustainability has been placed under the microscope (Lyon 2014; Papaoikonomou 2013). Although the food miles associated with fair trade products should have raised concerns earlier in a literature preoccupied with localization, this was not the case. Literature usually deals with them under the view of international solidarity and social justice, since these refer to products impossible to substitute with locally produced ones (e.g., coffee, chocolate) (Forno *et al.* 2015; Seyfang 2006).

Nevertheless, the focus of most research remains on individual motives and behaviors. AFNs' participants are categorized into producers and consumers and their motives, benefits and challenges are studied, as well as the interactions between these two groups (Anthopoulou and Koutsou 2014; Corsi, Barbera, Dansero, and Peano 2018; Feldmann and Hamm 2015; Morris and Kirwan 2011; Seyfang 2006). This is essential, since

differentiating between consumer-driven and producer-driven AFNs, among other things, can help us grasp the heterogeneity of the sector and understand its possible implications. On the other hand, the fact remains that individuals or groups of producers and consumers are still the epicenter of the analysis, rather than the collectivities themselves and their (more or less) collective decisions.

Recent research, however, has shifted this focus. Dal Gobbo and Forno (2020), Forno *et al.* (2015) and Forssell and Lankoski (2015), apart from focusing on individual behaviors, also adopt a collective view, engaging with decision-making processes and organizational practices. Papaoikonomou and Alarcón (2017) examine empowerment processes and democratic self-governance in a particular type of AFN in Spain. Grasseni (2014) also focuses on collective decision-making in AFNs, connecting it to the direct democracy as opposed to the representative democracy. These studies signify an interest in dealing with AFNs in terms of collective practices that could incite broader social change extending beyond the food system.

The focus on collective rather than individual practices has partly been dictated by the recent experience of southern European countries. As stated by Lekakis and Forno (2019), who review the evolution of political consumerism in Southern Europe (Spain, Italy, Portugal and Greece), social movement organizations concerned with food provision have blossomed since 2008, particularly during the period of economic crisis. These organizations implement and promote a solidarity economy not only as a strategy for changing consumption and distribution patterns but also as a strategy for broad social change. Numerous other researches corresponding to a large spectrum of social and solidarity economy initiatives and social movement organizations confirm this tendency to collective reconsideration of established stances, practices, institutions and power structures, pointing to broad social change (e.g. Amanatidou, Tzekou, and Gritzas 2021; Asara 2016; Backes, Gkiougki, Kay, Konstantinidis, Mattheisen, Sakali, Tzekou, Vatikiotis, and Vervest 2018; Calvário and Kallis 2016; Malamidis 2021; Roussos and Malamidis 2021; Varvarousis 2020).

When engaging with the strand of AFNs' research that focuses on collective decision-making, one can discover that there are some notions crucial for this discussion: knowledge, learning, participation, and reconsideration/questioning. Forno *et al*. (2015), as well as Dal Gobbo and Forno (2020), find that AFNs facilitate the diffusion of knowledge, thus promoting behavioral change and trust-building. Furthermore, through the processes taking place in AFNs, participants question the way their needs are met, beginning with the needs met by consumption and extending this questioning to the totality of their needs. Forssell and Lankoski (2015) portray participation and learning as the basis of dealing with sustainability issues and preserving "local knowledge", a type of knowledge they consider crucial when dealing with sustainability. Papaoikonomou and Alarcón (2017, 14) highlight the importance of participation and diffusion of information in AFNs to create "micro-versions of participatory democracies" and Lohest *et al*. (2019) examine in detail the different practices constituting food democracy in AFNs.

Nonetheless, though the importance of the diffusion of knowledge is frequently mentioned, it often remains unclear how it affects and relates to democratic decision-making. A coherent framework to approach the relationship between ecological and democratic practices and thus the relationship between ecology and knowledge is also absent as research usually focuses on one of these two subjects. This translates to a fragmented approach that doesn't account for interactions between AFNs' strategies and practices. Broad social change, though, implies not only adopting a set of practices relating to a set of transformative strategies, but also engaging with the complementarities, the conflicts and generally the interactions among the strategies, incorporated into practices. As Forssell and Lankoski (2015, 73) mention, referring to Maxey (2007) and Hassanein (2003), "sustainability is not a matter of meeting fixed criteria, but a process of negotiation among potentially conflicting, shifting goals". Therefore, Michel-Villarreal *et al.* (2019) have conducted themselves

and encouraged research that approaches economic, social, and environmental sustainability in different types of AFNs in an integrated manner.

Furthermore, there seems to be an ambiguity in connecting collective decision-making with types of democratic procedures, since AFNs' literature (to our knowledge) has not engaged in depth with the literature concerned with expanding or substituting representative democracy. Democratic decision-making in AFNs has been considered both as direct democracy as well as participatory democracy (Grasseni 2014; Papaoikonomou and Alarcón 2017) but it is usually not clear why it is connected to that form of democracy and not the other. The concept of food democracy has also been deployed to examine democracy in AFNs in a way that deals with democracy on a general level of questioning existing power structures rather than on a level of specific practices relating to specific forms of democracy (Lohest *et al*. 2019).

To address the abovementioned shortcomings, a coherent framework concerning broad social change, thus incorporating different strategies and practices, is needed. We believe that the degrowth and post-development discourses can provide this framework, since they approach social change in a wide sense via promoting a change in the development paradigm. The next section explains in more detail the reasons behind choosing these discourses as theoretical background as well as the background on ecology and democracy itself and attempts to clarify how this framework helps us deal with literatures' shortages.

3. Ecology and its connection to democracy in the degrowth and post-development discourse

Degrowth arose in 2001 as a slogan which "challenges the hegemony of growth and calls for a democratically led redistributive downscaling of production and consumption in industrialized countries as a means to achieve environmental sustainability, social justice and well-being" (Demaria, Schneider, Sekulova, and Martinez-Alier 2013, 209). Post-development emerged in the late 1980s incorporating a poststructuralist epistemology and post-colonialist views in the field of development studies. Post-development also adopts a critical stance towards the goals of development as manifested through economic growth and its ramifications, based on their devastating effects on certain populations and the environment. Furthermore, it is critical of how growth is pursued, i.e., the policies / projects undemocratically imposed by global and national financial institutions (Escobar 2007; Gibson-Graham 2005; Nederveen Pieterse 2013; Peet and Hartwick 2015). Both discourses address social change in a holistic manner by focusing on the change of the development paradigm. We consider them particularly relevant for our study because they not only mainly focus on environmental sustainability like other development discourses (e.g., sustainable development), but are equally concerned with a deepening of democracy bound by questioning existing institutions and power structures. Furthermore, degrowth and post-development consider alternative economies (including AFNs) as the collective subjects of transformative processes and hence as allies (Escobar 2015; D'Alisa, Demaria, and Kallis 2015), whilst

degrowth is among the interests of AFNs (Forno *et al*. 2015). Engaging with both discourses simultaneously is crucial for our framework due to their mutually enriching relationship[2] (Escobar 2015).

According to Escobar (2015) a crucial feature that is shared across the degrowth and post-development discourses is the commitment to ecology. This is quite straightforward in the case of degrowth: ecology is considered one of its six basic sources alongside (a) critiques of development and praise for anti-utilitarianism, (b) meaning of life and well-being, (c) bioeconomics, (d) democracy and (e) justice (Demaria *et al*. 2013). In the case of post-development, the emphasis on ecology is present when the consequences of development (i.e., environmental degradation of ecosystems) are highlighted (Ziai 2007). Nevertheless, they approach ecology from a different, yet complementary, standpoint: degrowth places more emphasis on biophysical boundaries (Van den Bergh and Kallis 2012) while post-development on the intrinsic value of nature in indigenous cultures and ontologies (Escobar 2015).

What separates degrowth and post-development from other discourses that aim to reform rather than rethink development, is their opposition to technological optimism. Resorting exclusively on technical expertise and technical solutions to deal with environmental problems has been a common strategy of policymakers. As O' Brien (2013, 249) argues, a more holistic, rather than just technological, ecological reform is 'much harder to achieve, as it challenges embedded interests and questions the environmental costs associated with the economic growth that underpins society'. On the contrary, both discourses disagree that unconditional focusing on science and technology can be a "panacea" for environmental problems. Instead, degrowth and post-development agree with Castoriadis (1981) that technology is not considered neutral, meaning that a technological transformation would also need social change to be effective.

To establish the argument that technology should not be the only solution, degrowth and post-development often employ different arguments, analogous to their abovementioned ecological standpoints. For example, degrowth resorts to the 'rebound effect' or Jevons Paradox which states that technological improvements leading to greater efficiency in resource use may lead to increased levels of usage. In other words, greater efficiency in resource use does not necessarily lead to less usage without the appropriate cultural and institutional changes (D'Alisa *et al*. 2015). Therefore, Latouche (2009) proposes a strategy of reducing, reusing and recycling. Post-development questions the monoculture of Western scientific knowledge, incorporated in technological advances, and draws attention to local and indigenous knowledge when considering solutions to environmental degradation (Ziai 2007).

Another feature shared between the two discourses is the reconsideration of democratic institutions. Ecological commitment in the degrowth and post-development discourse is bound to a deepening of democracy linked to a quest for autonomy (Escobar 2015), which crystallizes into an aspiration for direct (or participatory, inclusive or radical) democracy (Asara, Profumi, and Kallis 2013; Kothari, Salleh, Escobar, Demaria, and Acosta 2019; Ziai 2007). Consequently, there is a common space between degrowth and post-development in relation to how ecology is considered, which differentiates them from other development discourses. This common space lies in the renegotiation of cultural norms, institutions and epistemological and ontological considerations (Beling, Vanhulst, Demaria, Rabi, Carballo, and Pelenc 2018; Escobar 2015;

[2] This mutually enriching relationship is an outcome of their "historical, geopolitical and epistemic specificities" (Escobar 2015, 456) due to the fact that degrowth has arisen and gained prominence in the Global North while post-development in the Global South.

Kothari, Demaria, and Acosta 2014) when dealing with environmental sustainability under the viewpoint of a broad social change.

We encounter a broad terminology in the degrowth and post-development literature regarding democracy (Asara *et al*. 2013; Ziai 2007). Here, we choose to engage with direct democracy as defined by Castoriadis for two reasons. The first is that both degrowth and post-development literature are concerned with direct democracy. The second is that direct democracy, as defined by Castoriadis, encompasses both ecological considerations and knowledge-power structures, central to the two discourses. Castoriadis defines direct democracy as "a social regime that institutes collective forms of direct participation in decision-making and is capable of triggering a general educative process on the base of an effective internalization of the postulate of political equality" (Asara *et al.* 2013, 227). He considers that direct democracy, as a self-limitation social regime, and the autonomous society are mutually reinforcing (Castoriadis 1999) since collective autonomy is the participation of individuals in the creation of the laws governing their lives in a collectivity and simultaneously their capacity to constantly question them (Asara *et al*. 2013). On the other hand, participatory democracy, refers to an enlargement of representative democracy but not to its total substitution by direct decision-making procedures (Ibid). Based on this distinction, the term direct democracy would be more suitable for AFNs that are self-organized via collective decision-making procedures where each member can participate on an equal footing. Participatory democracy would be a more appropriate term for AFNs where decisions are made by a small number or a group of participants (e.g., producers) who take into consideration the views and opinions of the rest of the participants via frequent interaction.

The notion of self-limitation, encompassing a renegotiation of rights and needs, is what connects ecology with democracy and autonomy in Castoriadis' work. An autonomous society sets limits to its members 'on what it considers unacceptable wishes, tendencies, acts, etc.' (1981, 19). Self-limitation is directly connected to ecology as we have to limit our rights as individuals or collectivities since our acts can have consequences on both human and non-human nature given that we all share the same planet (Ibid.). Particularly when it comes to the renegotiation of needs, which in his view are not natural but socially constructed, Castoriadis (1981, 15) argues that it reflects 'the whole political and social problem'. This is because if we want to deal with a particular ecological problem, apart from reconsidering our needs, which in fact implies a cultural change, we need to reconsider the whole system of production and eventually the whole system of social organization. Through this reconsideration, which becomes possible on a collective level via direct democratic procedures, not only can we 'challenge the hegemony of single ways of thinking and the colonization of minds by a heteronomous imaginary', but we can also 'build alternatives to development in the practice' (Zografos 2019, 155).

Turning our attention to the relationship between democracy and knowledge, Castoriadis states that 'there cannot be "experts"[3] in political affairs' (Asara *et al*. 2013, 233) in an autonomous society since the existence of experts hinders the principle of political equality, i.e., the equal audibility of all voices in society (Zografos 2019). This view is shared by degrowth scholars that see 'the eradication of the monopoly of experts from collective decision-making' as one of its fundamental tenets (D'Alisa and Kallis 2015, 219). The same holds true for post-development that has placed a lot of effort[4] on denying experts the exclusive privilege of defining

[3] The term "expert" refers to people holding technical or scientific, specialized knowledge.

[4] According to Ziai (2014) degrowth is less preoccupied than post-development with the critiques of western, scientific knowledge as the only valid form of knowledge.

the terms of development, as this excludes the political dimension in the discussion regarding the signification of development and pathways to achieve it (Escobar 2007; Ziai 2007). Concerning ecology, democracy and knowledge, the above means that dealing with ecological problems in the context of social change, corresponds to collective decision making regarding self-limitation, while simultaneously avoiding that experts determine in advance the outcome of the decision, due to their privileged access to information and knowledge. This in turn excludes the possibility of addressing environmental degradation only in terms of technological and technical solutions.

Considering the above theoretical framework, we proceed to examine the stances and practices related to ecology and democracy in the AFNs of Thessaloniki, to shed light on the interaction of environmental sustainability with democratic decision-making in AFNs and on the challenges, limitations and conflicts arising along this interaction.

4. Material and methods

Our study area is the Thessaloniki Metropolitan Area, covering Thessaloniki's urban area and the immediate suburban surroundings with a population that exceeds one million. Thessaloniki is the second largest city of Greece and alongside the capital, Athens, it is where most AFNs are concentrated. We chose it as our study area since it is an area of particular interest for the study of AFNs. Thessaloniki hosts a variety of AFNs. Food cooperatives have particularly blossomed there, including the biggest food cooperative in the country as well as the only food cooperative (to our knowledge) where both producers and consumers participate in the administration (Tzekou 2020). Furthermore, the AFNs of Thessaloniki are characterized not only by social but also geographical proximity, since the majority of the producers' participating in these networks are situated in the close peri-urban or rural area (ibid). This enables frequent interaction of multiple stakeholders. All the AFNs studied are located in this area as also most of the actors they collaborate with either in commercial or non-commercial terms (clients, supporters, suppliers, partners, etc.).

The research was structured as follows: a) at the organizational level, we conducted semi-structured interviews with 13 AFNs; b) at the organizational level, we focused on one AFN and conducted a participant observation over 9 months; c) at the individual level, we conducted 31 semi-structured interviews within this same AFN. Parts b and c of the research enabled a more in-depth analysis of an AFNs' organization and operation. The research design involved qualitative methods given that our goal was to trace the stances of AFNs' members and their collective practices. We examined 13 out of the 36 AFNs found in Thessaloniki. Out of the rest 23, 16 were excluded since they had seized their operation or were underperforming[5], or we found it impossible to communicate with them. Other seven were excluded as top-down initiatives due to our interest in democratic decision-making.

At the organizational level, we conducted 13 interviews with key members in AFNs (one key member in each AFN). The networks studied correspond to a wide variety of AFNs including a consumer cooperative, a

[5] We recognize that leaving out the AFNs facing difficulties, may have resulted in biases regarding the interplay between ecology, democracy and viability. Nevertheless, since most of these initiatives have taken an enterprise form that incorporated socially innovative practices (Amanatidou *et al.* 2021), they are subject to the phenomenon of the "valley of death". This term refers to the interval between the ¨birth¨ of an innovative service or product and its commercialization, where many start-ups fail (Beard, Ford, Koutsky, and Spiwak 2009). Studying how this phenomenon unfolds in particular in AFNs could be of great interest, however it is out of the scope of the current article.

producer-consumer cooperative, three worker cooperatives running grocery stores, a grocery store operating in a social center, three worker cooperatives active in the food processing and/or catering, a market without middlemen, a solidarity kitchen, a peri-urban gardening initiative and a seed bank. By the time we conducted the interviews the AFNs were active for at least two and a half and up to seven years. Almost half of them (mostly worker cooperatives) count no more than 10 members, three of them have between 20 and 30 members and the other four count more than 100 members, with one of them reaching up to more than 400 members. The sample consists of AFNs with no commercial activity running entirely on a voluntary basis (4 out of 13), as well as of AFNs with commercial activity that are run entirely by the workers or by a combination of workers and volunteers (9 out of 13).

Regarding the in-depth analysis of an AFN, we selected the initiative based on the size, years of operation and magnitude of networking with other AFNs and actors. The initiative we chose for the in-depth analysis is Cretamo, a consumer cooperative that has been in business since 2013. Cretamo was created after two years of planning and consultation between people interested or already active in markets without middlemen and the food sovereignty movement. It was established as a totally self-funded project, as each of its initial 300 members contributed 150 euros to acquire a cooperative share. Currently, there are more than 440 registered members, ten of whom work in the cooperative shop where one can find products similar to (but usually not the same as) the ones in a conventional supermarket. Cretamo's cooperative is self-managed. Its members take all decisions regarding its operation during weekly assemblies (which are normally attended by 10 to 20 people) and during the general assembly that is held twice a year (where more than 50 members participate). Although it is not the first food cooperative that opened a grocery store in the city, Cretamo is a prominent social initiative in Thessaloniki as it is by far the biggest in terms of members, store size and variety of products. As a result, it has developed a quite dense network of collaborations with individual producers, small family businesses, producers' groups, worker cooperatives and agricultural cooperatives across Greece. We chose to focus on the largest initiative, though it is not the most representative of the sample. Nevertheless, it is the most representative in terms of society as a whole, because it involves many people and different stakeholders with divergent ecological and democratic views and stances. Thus, we consider it more appropriate for studying social change and in particular the interplay between ecological practices and democratic decision-making.

The in-depth study involved 31 semi-structured interviews with people of 5 subgroups: most active Cretamo's members (people participating in the weekly assemblies), active Cretamo's members (people participating in the general assemblies), workers (who are also Cretamo's members), consumers (who are not members) and producers. Within each subgroup we followed purposive sampling strategies to select interviewees except for the sub-group of consumers, where we formed the sample by stratification based on gender, income and age characteristics and then random selection in each layer.

Five interview guides were created. The interview guide for AFNs' members and Cretamos' most active members was the same, while the other four were shorter and slightly altered versions of the extended guide. The guides involved questions regarding ecological stances and practices such as criteria for selecting products, provenance of products and waste management as well as questions referring to decision-making procedures. Interviews' data were used to capture the variety of ecological and democratic practices in AFNs and to understand the stances, strategies and procedures that drive them. This was especially challenging in the case of Cretamo where, due its size, sometimes different groups of people are familiar with different practices. For example, workers are more aware of the ecological practices applied in the grocery store, while the product quality committee members are more aware of selection criteria.

Apart from the interviews, we conducted a nine-month participant observation in Cretamo. This involved attending weekly and general assemblies as well as promotion events and fests. Participant observation helped in complementing the data and exposing challenges, since it allowed us to enhance our understanding of decision-making procedures as well as to detect inconsistencies in everyday operation that participants tend to conceal during interviews.

Research took place from January 2018 to October 2018. The data collected from interviews and participant observation were transcribed and coded using researcher-created categories via NVivo10 software. Lastly, the names of all interviewees and all the AFNs cited have been changed due to ethical considerations regarding anonymity and confidentiality.

5. Ecology and democracy in AFNs

In this section we examine the ecological stances and practices as well as decision-making in the field based on the theoretical framework presented in section 3. First, we review the ecological stances and practices, comparing them to the results of similar studies. Afterwards, we examine decision-making procedures and their interaction with the formerly mentioned stances and practices, while also comparing our results to the ones of similar studies. Lastly, we refer to the main challenges and conflicts related to ecological practices.

5.1 Ecological stances and practices

Research on AFNs has been focused on examining the motives and values of participants to study ecological practices (e.g., Forno *et al.* 2015; Morris and Kirwan 2011; Partalidou and Anthopoulou 2017). In the degrowth and post-development discourse, ecological commitment implies the renegotiation of cultural norms and institutions as opposed to technological optimism. Consequently, if we want to approach ecology through the lens of degrowth and post-development, we can't avoid wondering: What do participants think about the relationship between the advance of technology and environmental sustainability? On a macro-level, do they believe that technological improvements, incorporating expert knowledge, suffice to deal with ecological problems? The answers to these questions can help us understand participants' stances on how development policies and practices should deal with ecological problems and how different types of knowledge should assist this effort.

A first finding is that when asked about the role of science and technology in solving environmental problems, more than half of the total interviewees (AFNs' representatives and Cretamos' members)[6] stressed the dependence of science and technology on political choices, which in turn reflect power relations.

'*Technology is not something politically neutral to me. Technological tendencies, like everything else, are subject to social antagonism, so those who prevail in social antagonism control most of the technological tendencies, achievements and applications*.', Lefteris, Cretamo

'*Technology can be useful in dealing with environmental problems, though in practice, due to the huge interests related to it, it is used for the purpose of serving power elites.',* Nikos, Seeds of change

[6] The term "interviewees" refers to both AFNs' representatives and Cretamo's members if not stated otherwise.

One of the interviewees explicitly referred to the rebound effect or Jevons Paradox to support his argument.

'*There is also in the literature an effect, called the rebound effect. It has been likened to the myth of the tortoise and the hare. The hare is technology that changes rapidly, but the tortoise is the growing number. No matter how fast the hare runs, billions of consumers enter the market, who aspire to buy more and more, thus nullifying the benefit from the improvement of technology. (....) We have seen this happening 2-3 times since the 1970s. Every time they make an invention, the energy consumed per unit falls, but total energy consumption is increased because it is cheaper*.', Petros, Cretamo

The rest of the interviewees did not have a clear view on the subject, while less than one fifth of them stated that technological improvements suffice to deal with ecological problems. Consequently, most AFNs' participants share degrowth's and post-development's view that dealing with ecological problems cannot be exclusively a scientific and technological matter as it requires broader cultural and institutional changes.

Subsequently, we explore the ecological practices of AFNs. We base this exploration on patterns and practices already examined in the relevant literature, though to a different extent and from different viewpoints, as stated above. One of the main aims of the vast majority of AFNs is to support local production. The latter is due to environmental concerns (reduction of food miles) as well as other reasons (e.g., reinforcement of local economy). As a result, all the AFNs involved in retail, catering and food production are trading or using food coming mainly from the same or nearby regions. As an indication of this, 66.7% of the suppliers (single producers and cooperatives) of one of the food cooperatives is located in the same region (Antoniou, Gilantzis, and Karagia 2016).

Nevertheless, by considering local products *a priori* as more ecological we can easily fall into what has been called "the local trap" (Brown and Purcell 2005), i.e., to assume that the local is inherently better and more transformative. To avoid this trap several issues must be considered. First, the ecological footprint of a product is not necessarily smaller in the case of local products. That is because it depends directly on the energy spent in production, which in turn depends on factors such as the method of production and climatic conditions. Second, in the absence of local processing infrastructures, locally produced processed products (e.g., meat, olive oil) may cover a long distance before reaching the local markets (Lutz and Schachinger 2013).

'*Even if it is a local product, the ecological footprint may be larger (...) Here, in Northern Greece, we can burn in our greenhouses so much oil for producing tomatoes that are easily produced in Crete ... It depends on the product, however. The ecological footprint has to do with the product, it's not just transport, it's other things too*. ', Chronis, Cretamo

Since the method of production is also a factor affecting the ecological footprint of a product, all food cooperatives choose to trade and promote products of alternative farming methods (such as organic, natural, or integrated farming, etc.) at different degrees ranging from 20% to 100% of the products, based on the estimations of the interviewees. Similarly, more than half of the AFNs active in food processing or catering use products of alternative farming, while those active in agricultural production deploy methods based on organic, natural, or biodynamic farming.

Finding the balance between locality and method of production is not an easy task. Apart from falling into 'the local trap', there is always the danger of falling into what can be called 'the organic trap'. This involves trading organic products from all over the world to guarantee a wide range of products all year long, and thus reducing or nullifying the benefits from ecological methods of production (Seyfang 2006, 2007).

As stated in the literature, these complex trade-offs demand the use of methods such as life cycle analysis to assess the environmental impact of the products (Lutz and Schachinger 2013). This is a quite difficult task for an AFN. A way to balance ecological concerns regarding place and method of production, is to trade only seasonal products, a practice especially common in the 'box schemes' and the community supported agriculture (Allen, Rossi, Woods, and Davis 2016; Seyfang 2006, 2007). This is the case for four out of the five AFNs involved in trading fruits and vegetables, who also inform their customers about the reasons they do so. Interestingly, the fifth one chose to have a full range of products all year long in order to satisfy all consumer preferences and ensure a high number of sales, though most of its members consume only seasonal products. Choosing variety over seasonality, a practice already reported in the relevant literature as harmful to the creation of stronger ties between food actors (Lutz and Schachinger 2013), is indicative of the existing differentiation even among the same type of AFNs operating in the same geographical region.

Concerning meat consumption, an understudied topic in AFNs' literature (Forssell and Lankoski 2015), our focus on collectively established practices and not on individual consumer patterns did not reveal much. Almost all AFNs studied have not yet been concerned about meat consumption on a collective level, with the only exception being that of the solidarity kitchen, which serves only vegan food.

Food-related ecological practices also extend to waste management. This involves packaging, as well as food waste, another strategy not particularly scrutinized in AFNs' literature (Forssell and Lankoski 2015). Many of the AFNs under consideration, especially those trading fresh food, sell at a lower price or even free of charge products close to expiry or not so attractive looking. Furthermore, the solidarity kitchen collects and distributes food leftovers to homeless people and asylum seekers at the end of the day. This way, AFNs contribute to minimizing the amount of food that ends up in trash. This contradicts the practices found in some big supermarket chains as claimed by a worker at Cretamo who used to work in a supermarket chain.

'*…people will not buy the bread that was produced yesterday, because it is considered stale. Here, we put it in a bag next to the dumpster and someone always comes and get it. In the big [supermarket] chains I was working at, they were forcing us to pour bleach in it [stale bread], so that people wouldn't come to take it. Our supervisors were checking the rubbish to see what we were throwing in*.', Diogenis, Cretamo

Regarding food packaging, almost all AFNs that use or sell packaged products, apply practices such as reusing packaging, or recycling if reusing is not possible. They also communicate with the producers (in cases where they are not themselves members of the AFN) so to reduce the packaging volume of the products as far as possible and / or use recyclable materials in packaging. In addition, most AFNs involved in food retailing have limited the use of plastic carry bags. Notably, this happened before the Greek government imposed the eco-tax on plastic carry bags in 2018. It is also worth noting that two food cooperatives coordinated a public campaign to encourage the abandonment of plastic carry bags. Thus, most of the AFNs studied, apart from trying to reduce their ecological footprint, also try to change the social norms connected to the production of waste.

5.2 Decision-making procedures

Under our theoretical framework, we hereby examine if and how the AFNs studied try to implement direct democracy and achieve a level of autonomy whilst being bound by the institutions and laws posed by the state (Calvário and Kallis 2016). Therefore, we examine a) how AFNs take decisions related to their operation and shape their internal institutions, i.e., whether there are collective forms of direct participation in decision-

making leading to the creation of their internal laws and regulations, b) if there is an ability to constantly question and revise these regulations and c) whether there are experts affecting this process.

First, the interviews revealed that all the AFNs make their decisions through collective processes. They regularly hold assemblies, i.e., every week or every month, that are open to all members[7] and sometimes to the wider local community[8]. In these assemblies decisions are made either by consensus or by simple (over 50%) or super-majority (over 70%). Specifically, 6 out of the 13 AFNs studied reported that they make decisions by consensus, 2 out of 13 by super-majority and 5 out of 13 by simple majority. In the last two cases, members are trying to achieve consensus and if this is not achieved, they resort to majority. Thus, AFNs imply direct democratic (rather than just participatory as stated in some part of the literature) procedures to create themselves the governing rules of their operation. Moreover, the AFNs who choose the legal form of a cooperative go beyond the national law which prescribes that decisions should be made by simple majority (Law 4430/2016).

The process of self-institution involves questioning established regulations through monitoring the implementation of decisions. As revealed in our interviews, frequent questioning and reviewing of internal rules is a common feature of the governance of AFNs'. This was confirmed via participant observation during which Cretamo's members questioned, reconsidered, and abolished or revised existing rules. One example is the revision of the majority share required among members to decide. In particular, members revised their rules so that when it is impossible to achieve consensus, decisions should be taken only by a super-majority instead of a simple majority. This decision was the outcome of collective reconsideration following a strong conflict between members.

The ability to form their own rules and question them is facilitated by the absence of experts. The process of decision-making allows the equal sharing of knowledge among all participants without attaching *a priori* more importance to expert knowledge. This way, all participants are adequately and equally informed to reach a decision without excluding the possibility to question it. As one Cretamo's member stated:

'*If the person you have entrusted with making all decisions, even if she/he is the best professional or the best scientist on the subject, makes a mistake, there is no way to correct it. While, through collective processes, we share the positive things and the negatives too, so in any case, through a collective effort to make decisions, we have the ability to change a bad policy or a decision we may have taken.*', Vasilis, Cretamo

Furthermore, participant observation showed that different kind of arguments are made during the decision-making process, like arguments based on technical or scientific, specialized knowledge, on practical knowledge, on values or on emotions. The arguments based on specialized knowledge are accepted quite often but the same holds true for the arguments based on practical knowledge or on values. This underlines the absence of expert dominance, as defined in terms of technical or scientific, specialized knowledge[9].

[7] In case of AFNs with a legal form the term "members" refers to people registered as members of the cooperative, while in the case of AFNs with no legal form it refers to all participants.

[8] In case of AFNs with no legal form the assemblies are always open to everyone interested. In case of AFNs with a legal form the assemblies are either open only to members or also open to the local community to attend but not to participate via voting.

[9] We believe that a detailed examination of the kinds of arguments that tend or tend not to prevail during decision-making would be of great interest in the context of studying direct democratic procedures. For example, during the participant observation we

5.3 Connecting ecological and democratic practices

The fact that AFNs decide through direct democratic procedures to trade only seasonal products, corresponds to a collective act of self-limitation; it is not simply a matter of consumers' preference as it is often considered in related research (Seyfang 2006, 2007). In particular, if we take into consideration Castoriadis' view on the connection between ecology, democracy and autonomy (1981) we are witnessing a renegotiation of needs at the collective level, that is, the need to consume certain fruits and vegetables all year long. Trading only seasonal products is an act of self-limitation of an autonomous society that sets limits to its members on what it considers unacceptable wishes, tendencies, acts, etc., which, in our case, is the consumption of out-of-season fruits and vegetables. The same holds true for limiting the use of plastic carry bags.

But it is not only these practices that are indicative of a collective renegotiation of needs leading to self-limitation. As stated, the examined AFNs implement several practices reflecting ecological concerns which lead to self-limitation. For example, many AFNs aim at minimizing waste through primarily reducing and reusing rather than recycling which, according to Ghisellini, Cialani, and Ulgiati (2016), has been the main focus of applied circular economy projects up to now. In general, AFNs do not rely on the use of science and technology to limit the ecological footprint of their operation. Instead, they focus on renegotiating their whole mode of operation. The outcome is a set of practices related to self-limitation e.g., eating only locally produced, organic and seasonal products, serving only vegan food or limiting waste. Therefore, under this point of view, it is the notion of self-limitation that connects collective decision-making in a concrete way with the developing of non-hierarchical relationships not only among humans but also with non-human nature (Dal Gobbo and Forno 2020). Furthermore, the stances and practices found in AFNs associate them with the discourses of degrowth and post-development as they also focus on the collective renegotiation of social norms to achieve ecological goals.

Crucial to the collective renegotiation of needs via direct democratic procedures is the diffusion of different kinds of knowledge among the participants. This process is important to enable participants to be equally involved in decision-making and avoid any systematic influence of experts. The members of Cretamo have recognized this challenge and made efforts to share all relevant types of knowledge among all members to ensure equally knowledgeable participation in decision-making. This is done by: a) e-mailing in advance the agenda to be collectively discussed in the weekly and general assemblies, b) uploading proposals for consultation on the internet before the actual discussions, c) uploading the proceedings of every assembly on the internet and d) sending a newsletter every two months to all cooperative members summarizing the decisions taken during the previous period. Thus, the diffusion of knowledge, as stated in the literature, promotes empowerment, awareness, trust relationships and behavioral changes (Forsell and Lanksoki 2015; Forno *et al.* 2015) which in turn makes possible direct democratic decision-making enabling collective self-limitation. This way it is vital to the interaction between environmental sustainability and democratic decision-making, which constitutes our first guiding question throughout our analysis. Under our theoretical framework, the diffusion of knowledge is not only promoted via collective forms of governance (Papaoikonomou and Alarcón 2017) but is also a prerequisite of direct democratic decision-making.

Following Castoriadis's view (1981), the collective renegotiation of needs in AFNs due to ecological concerns is crucial for reconsidering the agrofood system and through this, it can lead to the reconsideration

found that arguments based on emotions almost never prevail in decision-making. Nevertheless, a detailed examination would be out of the scope of the present paper.

of the whole system of social organization and thus promoting broad social change. The possibility and practice of continuously questioning established regulations and laws promotes these processes of reconsideration. This way, collective self-provisioning can lead to the reconsideration of how our needs beyond consumption are met (Forno *et al.* 2015).

5.4 Conflicting, shifting goals and challenges

The collective renegotiation of consumption needs leading to self-limitation in the examined AFNs mostly concerns the geographical origin and production method of the products. As mentioned earlier, most AFNs limit the variety of fruits and vegetables offered in each season, but general reconsidering of the variety of products produced, traded, and consumed is out of the table. Let's take the case of fair trade products which surprisingly, as stated above, has not yet gained much attention in AFNs' literature as an ecologically inconsistent practice. Similarly to other AFNs (Forno *et al.* 2015; Seyfang 2006), all the examined food cooperatives (apart from one that only trades fair trade coffee) choose to trade them for reasons of social justice[10] and solidarity on an international level, despite the significant pollution related to their transportation. During our interviews one member of Cretamo expressed his discomfort with this practice. He mentioned that he would prefer it if instead of trading fair trade products the cooperative found other, non-mediated by the market, ways to directly support the income of producers in the Global South. Nevertheless, this reconsideration remains on an individual level, like in previous research where it was indicated that some but not all participants replace fair trade products with locally produced ones (Papaoikonomou 2013). In our case, the goal of social justice as well as economic viability prevail over environmental concerns, since cutting out products that are considered basic in most peoples' diet (such as coffee and chocolate) would probably affect sales.

The participant observation also revealed cases of inconsistency regarding already established strategies, such as limiting waste packaging. For example, in Cretamo, workers are placing vegetables in plastic packaging to make them look more attractive and easier to carry, consumers (both members and non-members) broadly use plastic carry bags and in general plastic packaging is still broadly used. Even in the case of collectively established strategies, concerns for commercial success or practicality may prevail over environmental concerns during everyday practice, particularly in times of economic distress where the focus is shifting from goals related to social change to ensuring economic viability. Nevertheless, as in direct democratic procedures all practices are constantly subject to questioning, participant observation showed that there are members of Cretamo who have drawn attention from time to time to the excessive use of plastic, thus bringing these practices under the process of collective renegotiation.

The above cases stress the conflicting, shifting goals (Forssell and Lankoski 2015) which affect the outcome of the collective renegotiation process regarding self-limitation and thus the ecological practices in AFNs. In the context of direct democracy, regulations and practices are constantly open to questioning and renegotiation, which enhances the possibility of frequent changes in practices. Taking a developmental approach, like the ones of degrowth and post-development, which incorporate a multitude of socioeconomic and ecological concerns, can help us understand better not only the interconnectedness but also the conflicts among AFNs' strategies, like in the case of fair trade products. Nevertheless, in our case, economic viability is more often in conflict with other goals. We believe that this is due to the nature of our sample, as 9 out of the 13 AFNs are

[10] The focus on social justice is another common feature between degrowth and post-development discourses (Escobar 2015).

operating under market competition. Furthermore, the whole research took place in Greece, in the aftermath of the financial crisis.

When examining ecological practices in conjunction with direct democratic governance, possible adverse impacts on the latter that may affect the former also become obvious. As mentioned earlier, the diffusion of different kinds of knowledge is crucial to the collective renegotiation of needs. Not only is it a prerequisite of political equality but it also facilitates the commitment and engagement of participants to self-limitation.

'*Collective decision-making is slower, but the decision grows in you and what is needed to be done, is done*.' Vaggelitsa, Sideritis kai Krana

However, the diffusion of knowledge is a time-consuming process which can have an adverse impact on participation.

'*If an assembly takes 5-6 hours, some people get tired and leave and they do not come back again.*', Angelos, Cretamo

According to the relevant literature, low participation of members is one of the main problems that AFNs face (Cone and Myhre 2000; Ekberg 2008; Pole and Gray 2013; Simmonds and Birchall 2004). The limited participation of members has a negative impact on the process of self-institution, meaning that it adversely affects how various kinds of knowledge feed into this process and how collective the renegotiation of needs really is. In addition, it may contribute to the burnout of the strongly engaged members, a phenomenon that can work cyclically, i.e., low participation leads to burnout of active individuals, leading several of them to distance themselves or withdraw (Gorski 2015) and thus leading to even lower participation if new people do not enter the initiative, and so on.

Finding the balance between sufficient diffusion of knowledge and avoiding participants' withdrawal from the process is a difficult challenge for AFNs struggling to imply direct democratic procedures. Participant observation showed that the members' of Cretamo try to address this challenge by setting a time limit of 2-2,5 hours for their assemblies and sticking to it most of the time. They have also set a limit on the number of assemblies needed to decide on a specific matter (usually two) though this limit is much more flexible depending on the severity and difficulty of the subject under consideration.

5. Conclusions

Our research applied an integrated approach to ecological practices, responding to the call for more holistic research in different types of AFNs (Michel-Villarreal *et al.* 2019). Specifically, we focused on examining the interplay between ecology and democracy via an integrated and straightforward theoretical context. Turning to degrowth and post-development to elicit this theoretical context was crucial to our study as they approach environmental sustainability and social change in a holistic and complementary manner. So was the focus on collective practices rather than on individual behaviors broadly examined in AFNs' literature, which shifts attention to decision-making.

Castoriadis' approach of direct democracy, which is part of the degrowth and post-development discourse, can describe decision-making procedures in the examined AFNs in a clear and consistent way. It addresses literatures' vagueness regarding the way knowledge, participation, and reconsideration affect direct democratic procedures, as well as offers an analytical view to examine our first research question regarding the interaction of environmental sustainability with democratic decision making in AFNs. Under this view, we can delineate

ecological practices in AFNs as self-limitation procedures stemming from a collective renegotiation of needs based on political equality. This means that ecological practices are directly related to the diffusion of different kinds of knowledge. Diffusion of knowledge is a prerequisite of direct democratic decision-making and thus collective self-limitation procedures. At the same time, it can have an adverse impact on them due to its time-demanding nature which can negatively affect participation. Thus, balancing sufficient diffusion of knowledge and avoidance of particularly time-consuming decision-making procedures is one of the challenges arising from the interplay between ecology and democracy, which we examined in the context of our second research question, referring to the challenges, limitations and conflicts along this interaction.

By promoting behavioral changes, direct democratic decision-making, and the diffusion of different kinds of knowledge, the examined AFNs renegotiate their whole mode of operation instead of relying solely on the use of science and technology to limit their ecological footprint. This strategy is in accordance with degrowth and post-development that pursue environmental sustainability, as part of a broad social change, via the renegotiation of cultural norms, institutions, and even epistemological and ontological considerations.

Examining ecological and democratic practices through the lens of degrowth and post-development helped us understand their interconnection. Consequently, adopting degrowth's and post-development's general theoretical framework to examine synergies and conflicts between the strategies of AFNs incorporated in specific practices could help researchers approach in a holistic manner the different aspects of AFNs' operation relative to social change. For example, we could examine the case of trading fair trade products as a practice related to a trade-off among the goals of ecology, social justice and reduction of production and consumption which are part of the two discourses.

Lastly, since our research also focused on the challenges, limitations and conflicts arising from the interplay between ecology and democracy, it became obvious that pursuing economic viability in AFNs can negatively affect ecological practices. Concerns regarding economic viability, especially in times of economic distress, change the weighting of goals that affects direct democratic decision-making as well as everyday practice, shifting focus from environmental to economic concerns and thus limiting ecological practices or canceling the ones already established. Research on AFNs' economic viability has mainly focused on producers' income (Lohest *et al.* 2019; Testa, Galati, Schifani, Crescimanno, Di Trapani, and Migliore 2020), while research has also focused on examining economic viability in AFNs through considering workers' income and consumers' voluntary work (Biewener 2016; Novelli and Corsi 2018). Nevertheless, apart from examining the economic viability of AFNs as their contribution to the incomes of different groups of participants, future research could also focus on how the goal of economic viability interacts with other goals of AFNs.

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