

Case study

Trade unions facing the eco-social-growth trilemma: prospects and hurdles for a just transition solution to the Taranto crisis

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1. Introduction

As the European Green Deal commits to promote a socially just transition to a carbon-neutral economy by 2050, energy-intensive industries and their surrounding territories are expected to face complex and interconnected economic, social and environmental challenges, which we describe as an eco-social-growth trilemma. Building on environmental labour studies, this paper concentrates on trade unions and on the role that they play in addressing this trilemma in the case of Taranto. Thus, it seeks, first, to explore unions' economic, social and environmental objectives and, second, to map and assess the solutions that they put forward to reconcile (or not reconcile) these objectives. Ultimately, the aim is to understand whether and to what extent trade unions are promoting just transition approaches.

The paper investigates the highly conflictual case of Taranto. This is a paradigmatic case when it comes to the eco-social-growth trilemma. The city is home to one of Europe's largest industrial sites for steel production, formerly known as ILVA. On the one hand, the economy of Taranto and its surroundings strongly relies on the steel site as a massive source of income and employment. On the other, polluting industrial fine dusts have been found to cause widespread deaths and severe illnesses in the people living near former ILVA. Therefore, a socio-ecological-economic crisis has been present for several years now in Taranto and hence, in this context, new claims for decarbonization and just transition might encounter strong feasibility barriers.

After briefly reviewing the reference literature on labour environmentalism, the paper reconstructs the main timeline of the crisis in Taranto and then maps and assesses – through the lenses of the above-mentioned trilemma - the positions and proposals put forward by relevant trade unions to solve this crisis. The case is studied through qualitative methods, namely a combination of desk research – i.e. press, documentary and literature review – and field work – i.e. semi-structured interviews to trade unionists highly involved with the case. Five interviews have been conducted between January and February 2022 with representatives from four trade unions: three sectoral federations belonging to the three largest Italian unions – the Italian Federation of Metalworkers (FIOM), the Italian Union of Metalworkers (UILM) and Italian Federation of Metal Mechanics (FIM) – and a grassroots union - *Unione Sindacale di Base* (USB).

All in all, this article is intended to contribute to the labour environmentalism literature, by applying a novel analytical framework to understand trade unions' complex positions. Furthermore, it is also meant to update the findings of existing studies on the Taranto case, by

assessing how unions have reacted to notable recent developments - like the ongoing nationalization of former ILVA and the new European commitment to decarbonize the economy.

2. Trade unions facing the eco-social-growth trilemma: a literature review

The present section briefly reviews the reference literatures of this study, which is fundamental to frame the case of Taranto.

2.1. The eco-social-growth trilemma & just transition

The interconnection between social and environmental challenges is gaining increasing salience, especially within the European Union (EU), where Member States have committed through the 2019 European Green Deal to decarbonize their economies - i.e. to substitute carbon-intensive technologies and practices with low-carbon, ones as a way to address climate change (Sovacool *et al.*, 2021). For European industries, especially carbon-intensive ones, decarbonization, like any environmentally-oriented transition, is expected to bring about considerable structural changes, that are likely to affect people, workers and communities disproportionately (Thomas and Doerflinger, 2020). While the fossil fuel extraction sector is obviously expected to suffer significant job losses from the ongoing phase-out efforts (Galgóczy, 2019), other sectors are also predicted to be impacted: “although some energy-intensive industries will not be completely displaced, tighter environmental regulations may require changes in production, possibly affecting employment or leading to an offshoring of emission-intensive activities” (Thomas and Doerflinger, 2020: 386). We can also predict these employment impacts to be unevenly distributed among the workforce, since normally carbon-intensive industries employ older, male, blue-collar workers living in peripheral areas that are heavily economically dependent on these sectors (Botta, 2018). Moreover, beyond jobs-related challenges, environmentally-oriented transitions can potentially give raise to other social risks including “the need for enterprises, workplaces and communities to adapt to climate change to avoid loss of assets and livelihoods and involuntary migration” and “adverse effects on the incomes of poor households from higher energy and commodity prices” (International Labour Organization, 2015: 5).

All the risks described above represent salient examples of trade-offs arising in the simultaneous pursuit of environmental and social (or employment) objectives. However, it is often a third objective, economic growth, that actually generates trade-offs, due to its double-edged socio-ecological implications. On the one hand, advanced market economies are stuck on a “treadmill of production” (Schnaiberg, 1980) - degrading nature through the excessive extraction of natural resources and pollution - and, consequently, environmental protection encompasses a quest to limit unregulated growth (Meadows *et al.*, 1972) within “planetary boundaries” (Rockström *et al.*, 2009). On the other hand, economic growth - at least according to the traditional European welfare model - is often viewed a necessary precondition for social protection, in that it is supposed to provide jobs for those able to work, as well as the financial resources needed to sustain welfare programmes for those that instead cannot participate into the labour market (Meadowcroft, 2005; Gough, 2016).

Therefore, complex challenges, such as those related to decarbonization, often arise from a three-dimensional interconnection between potentially incompatible goals: economic growth, social and environmental protection. To illustrate the complexity of this interconnection, building on the “three spheres approach” to sustainable development (O’Connor, 2007), we refer to the eco-social-growth trilemma (cf. Sabato and Mandelli, 2018; Mandelli *et al.*, 2021).

This heuristic describes the governance of economic, social and environmental goals - the three spheres at the vertexes of a hypothetical triangle – as well as the (eventual) reconciliation of their mutual implications – represented by the lines of the triangle. This trilemma specifically points to the role of politics in dealing with complex multidimensional challenges, since different socio-political actors might come up with different cognitive-normative approaches

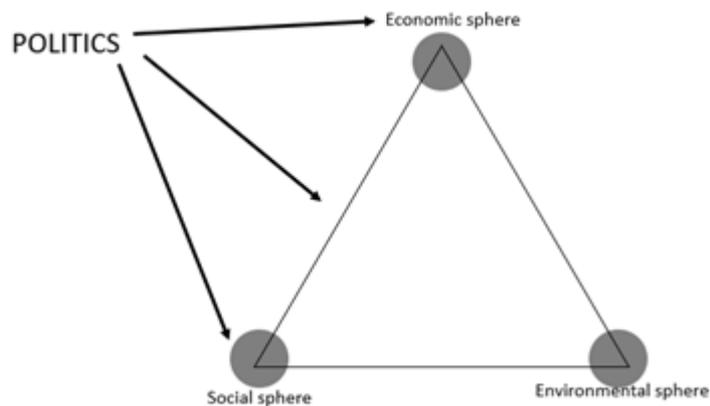


Figure 1. The eco-social-growth trilemma

to frame and govern the trilemma (Sabato and Mandelli, 2018; Mandelli *et al.*, 2021). Approaches vary according to the relative importance that they attribute to economic, social and environmental goals and to their integrative ambition.

Just transition can be seen as an approach to the eco-social-growth trilemma applied to the context of environmentally-oriented transitions. It aims to give equal importance to social and environmental goals and to achieve them in an integrated manner. In particular, while advocating for a transition towards a more sustainable economic model, just transition also puts the spotlight on the social justice implications of this transition. These include i) distributive justice, i.e. how the transition (re)shapes the allocation of resources; ii) procedural justice, i.e. whether participation and engagement in the governance of the transition are properly ensured; iii) recognition justice, i.e. how the transition impacts vulnerable groups; and, finally, iv) restorative justice, i.e. how should the costs of the transition be compensated for (McCauley and Heffron, 2018; Sovacool *et al.*, 2021). In EU countries, just transition currently refers mostly to decarbonization, giving rise to claims for “a fair and equitable process of moving towards a post-carbon society” (McCauley and Heffron, 2018: 2), which should take into account both “‘outcomes’ (how the new employment and social landscape in a decarbonised economy should look); and ‘process’ (how we get there from present socio-economic realities)” (Galgóczy, 2020: 369). Nevertheless, decarbonization is only one of the various possible contexts to which the just transition approach has been applied (Wang and Lo, 2021). Long before it became a global framework to address climate change, just transition actually originated within the North American trade union movement in the 1980s as a demand of financial support for workers facing localized environmental and health crises, such as the shutting down of a highly-polluting firm (Stavis *et al.*, 2020). The history of just transition calls attention to the key role of trade unions in dealing with the eco-social-growth trilemma, which the following sub-section is precisely dedicated to.

2.2. Trade unions & labour environmentalism

Trade unions have long been recognized as central actors in the political economy of just transition from the local – see the example above about North American unions - to the international – exemplified by the activism of the International Labour Organisation in the United Nations’ climate policy negotiations – levels (Newell and Mulvaney, 2013). Studies have revealed how several unions have not only acted as ideologues of just transitions, but have also proactively managed to coalesce other socio-political actors around this concept (Winkler, 2020; Jessoula and Mandelli, 2019). The labour-oriented research on just transition has focused mostly on the agency of trade unions at different levels (Wang and Lo, 2021), highlighting how their attitudes towards just transition is not homogenous, but rather varies considerably from the firm-local to the international levels (Thomas and Pulignano, 2021). Indeed, not all labour organizations necessarily support just transition and, as the latter is increasingly becoming a contested concept (Stavis *et al.*, 2020), different unions may also assign different meanings to just transition. Therefore, studies on trade unions’ environmental attitudes can help us mapping different conceptualizations of just transition, as well as existing competing approaches.

The industrial relations literature has only recently started to investigate trade unions’ positions on environmental challenges, since labour and environmental studies had traditionally been researched separately (Räthzel and Uzzell, 2013). This is perhaps unsurprising if we think that, in advanced market economies, jobs – which represents the main sources of income for the working class – significantly depend on environmentally-degrading economic activities (Wissen and Brand, 2021). Consequently, industrial relations have long seemed to be inescapably rooted in industrial capitalism and, as such, trapped in the treadmill of production (Tomassetti, 2020). Building on concrete unions’ experiences around the world, Räthzel and Uzzell (2013) have started to question these assumptions, by coming up with the term “environmental labour studies”, or “labour environmentalism”, to investigate trade unions’ environmental attitudes, narratives and strategies. In a nutshell, labour environmentalism is meant to show that not all unions are always necessarily forced to choose jobs over environmental protection, but rather often manage to overcome this “jobs vs. environment dilemma” (Räthzel and Uzzell, 2011; Thomas and Doerflinger, 2020).

Existing classifications of trade unions’ environmental attitudes tend to distinguish two types of opposite positions. On the one hand, some trade unions rely on purely neoliberal positions (Tomassetti, 2020), based on an “instrumental” understanding of the nature-labour relationship (Wissen and Brand, 2021), and thereby often denying the importance of environmental challenges or even opposing environmental policies (Thomas and Doerflinger, 2020). Notably, this is expected to be the position of unions operating in “depressed areas and sectors with low added value and growth capacity, where monopsonist labour markets preclude any alternative option to plant shutdown or perpetuation of industrial activities dangerous to health and the environment” (Tomassetti, 2020: 442). On the other hand, of course, we instead have labour environmentalist strategies and just transition approaches. However, not all of them are equal.

A wide variety of conceptualizations of just transition exist, ranging “from a simple claim for jobs creation in the green economy, to a radical critique of capitalism and refusal of market solutions” (Barca, 2015: 392). We can differentiate varieties of just transition, first, according to the “depth” of union’s positions (Stavis and Felli, 2020). Along these lines, Stevis and Felli (2015, 2020) distinguish between “transformative” positions, that rest on anti-industrialist and/or egalitarian principles, form “affirmative” ones, that instead do not aim to fundamentally subvert the current socio-economic order based on capitalist modes of production and

consumption. “Affirmative” positions roughly correspond to what other authors found in trade unions’ “technological fix” narrative (Räthzel and Uzzell, 2011) and in their “strategic” understanding of the labour-nature relationship (Wissen and Brand, 2021), which often lead unions to advocate for ecological modernization, green growth and green jobs and in favour of a shared effort of public and private actors in delivering on just transition (Felli, 2014; Stevis and Felli, 2015). “Transformative” accounts can instead be associated with the “social movement discourse” (Räthzel and Uzzell, 2011), with which unions place themselves in the context of broader general interests and, by relying on an “organic” understanding of the labour-environment nexus (Wissen and Brand, 2021), they often end up advocating for radical changes in the currently-prevailing capitalistic model that is seen as intrinsically incompatible with a true just transition (Tomassetti, 2020).

Another way with which environmental labour studies discern among unions’ just transition position pertains the scale and scope of unions’ demands, i.e. the spatial-temporal reach and width of the environmental challenges they consider (Stevis and Felli, 2020). Along this dimension, authors normally identify “narrow” and “broad” just transition approaches (Pinker, 2020; Eisenberg, 2019; Galgóczi, 2020; Stevis and Felli, 2020; Smith, 2017). Narrow conceptions are closer to the original just transition claims by North American trade unions. In this view, just transition addresses, first and foremost, sector-specific and/or localized challenges, which represent an immediate emergency. Narrow just transition approaches hence consider only those environmental concerns linked to “lifeworld sustainability” (Hausknost, 2020), i.e. having to do with the state of the environment here and now and with issues like the presence of toxic and unhealthy substances in air, soil and water. Instead, broader just transition positions usually promote a whole-economy, forward-looking and global claim, which goes beyond the immediate needs of directly-affected workers and communities and it is rather concerned with “systemic sustainability” (Hausknost, 2020), i.e. with preserving the bio-physical conditions of the planet in the long run. Therefore, in short, the distinction between narrow and broad approaches is useful to understand *which* environmental goals unions actually consider. Combating climate change, for instance, is key to achieve systemic sustainability and, thus, it is important to explore whether and how “unions approach and wrestle with the challenge of transitioning from a carbon-intensive to a carbon-neutral green economy” (Clarke and Lipsig-Mummé, 2020: 358).

3. The historical background: reconstructing the multifaceted crisis in Taranto

The present section briefly reconstructs the history of the multi-faceted crisis – with economic, social and environmental implications – affecting the city of Taranto in southern Italy Apulia. The latter hosts the biggest steel factory in Europe. With a 2021 production of 4.5 million tons, the plant formerly known as ILVA accounts for about 25% of the whole Italian steel production (Palmiotti, 2021). The factory is nested in a Province characterized by high unemployment levels - 11,3% in 2020 against a 45% employment rate (ISTAT, 2022) – where it represents a huge source of labour – with 10.700 workers directly employed in the plant in 2018 (USB, 2018). The following sub-sections are dedicated to describe the most pivotal moments in the history of the Taranto case, the most recent of which, more relevant to our case, are summarized by the table below.

Table 1. Short chronology of the Taranto case	
<i>Year(s), month</i>	<i>Brief description of the main development</i>
2012, July	Inquiry <i>Ambiente Svenduto</i> : seizure of the plant, arrest of the heads of Riva company
2013	Letta government poses former ILVA under the government's supervision ("Commissariamento")
2013-2017	Government's supervision period
2018	ArcelorMittal purchases former ILVA
2018, September	Agreement between the government, trade unions and ArcelorMittal
2019, November	ArcelorMittal announces its withdrawal from the location contract
2020, December	Conte government announces the nationalization of former ILVA, as well as i) a new industrial plan and ii) the aim to use hydrogen in steel production at former ILVA
2021, January	NRPP proposal: 2 billion € investments for former ILVA
2021, April	Final NRPP: 2 billion € investment in R&D for hydrogen technologies
2021, November	Trade union mobilization
2021, December	Meeting at the Ministry for Economic Development: new industrial and investment plan are announced

3.1. 1965-2012: from the plant foundation to the roots of the crisis

In Taranto, the production of steel began in 1965 under the lead of Finsider, a state-owned steel company, and Istituto per la Ricostruzione Industriale (IRI), a major public body. The initial choice of building a steel plant in Taranto responded to the broader political willingness to promote the industrialization of southern Italy, ultimately aiming to tackle the never-ending "*questione meridionale*", i.e. the structural and persistent backwardness in the socio-economic development of southern Italian regions compared to northern ones.

In the early 1970s, the ILVA site was enlarged with a general increase in the capacity of the plant (Romeo, 2019). This initial phase coincided with a significant occupational expansion for the steel sector, both at national and at European level. This trend started to change in the late 1970s, when the stabilization of the demand of steel caused a broad employment reduction in the sector (Dumford and Greco, 2007; Romeo, 2019), which started to affect Taranto too. During this period, ILVA workers' awareness of the environmental externalities of steel production was limited to health and safety on the workplace: "we note a very strong sensitivity toward the physical-environmental condition in which the work takes place: dust, heat and everything that brought physical wear is claim object; in particular, sickness and accident fear is really spread" (Baglioni, 1969: 15, authors' own translation).

In beginning of the 80's, ILVA used to employ more than 20 thousand people, but this number was halved in a ten-years' time (Piattoni, 1996). Back then, not only did the steel demand start decreasing world-wide, but all Italian companies were also facing decreasing revenues, caused by the appreciation of the Lira, and increasing costs, caused by increasing interest rates (Romeo, 2019). As a result, the Italian steel sector entered in a severe crisis that culminated, in the first part of the 1990s, with the closure of some plants - Bagnoli and Sesto San Giovanni - and the privatization of others – Piombino, Cornigliano and Taranto. In particular, the privatization of ILVA in Taranto - with the 1995 purchase of the plant by the Riva family - was

a conscious political choice. The Italian government, along with IRI and the European Commission, that coordinated the steel industry restructuring at the European level, decided that ILVA should have maintained a central role in the Italian industrial landscape (*ibid.*).

The new ownership suddenly introduced significant innovations to restore the profitability of the plant: they promoted a reorganization of logistic arrangements and a turnover of the workforce (Dumford and Greco, 2007). The Riva-ownership period was characterized by a strong conflict between the family and trade unions and by scarce investments in the modernization of the plant. On the one hand, the turnover process took the form of an old workers “exodus” - 7.000 between 1995 and 2001 (*ibid.*) - which was compensated by a massive hiring of young employees typically through apprenticeship contracts and by the penalization of unionization. On the other hand, instead, few interventions were done to improve the environmental performance of the plant (Romeo, 2019; Doria, 2021; Dumford and Greco, 2007).

During the Riva-ownership years, an increasing awareness grew in the city concerning the environmental impacts of production, especially about two toxic and cancerous chemicals emitted by ILVA: benzo(a)pyrene and dioxin. The former substance, in 1995, was found to be 400 times more concentrated than the legal limit by a Local Health Unit report (Dumford and Greco, 2007), while a 2008 toxicologic exam conducted on the sheep milk produced in the ILVA surroundings revealed a higher concentration of dioxin than the legal limit (Bonini *et al.*, 2021). Public authorities were just starting to address the polluting activities of ILVA – namely through the 2012 Integrated Environmental Authorization (AIA), an administrative document meant to monitor environmental externalities (Ministero dell’Ambiente e della tutela del territorio e del mare, 2012) – when an unprecedented judicial decision came.

3.2. 2012-2018: from the judicial inquiry to today

In 2012, Judge Patrizia Todisco signed an executive order for the seizure of the ILVA plant (Casula, 2021). This inquiry, known as *Ambiente Svenduto*, was based on an epidemiologic (Forastiere *et al.*, 2012) and a chemical (Sanna *et al.*, 2012) report. In particular, the epidemiologic report showed a significantly higher mortality rate in the neighbourhoods closest to the factory if compared the other Taranto areas. Moreover, the same report ascertained an excess in the mortality rate from cancer of former ILVA workers. The report ended by stating that “pollutants emitted by the steel plant have caused and are causing [...] illness and death events” (Forastiere *et al.*, 2012: 23, authors’ own translation). The judge hence disposed for the arrest of the heads of the company, Nicola and Emilio Riva, and for the seizure of the ILVA plant.

The conflict suddenly broke out. On the one hand, groups promoting environmental positions advocated for the immediate closure of ILVA, in light of environmental and health concerns; on the other hand, actors holding industrialist views instead argued against the judicial decision, recalling how ILVA represented the most important source of employment and income in the Taranto area. The former groups included environmental associations - Legambiente and Peacelink - citizens committees - Comitato Cittadini e Lavoratori Liberi e Pensanti (CCLLP) – and, notably, grassroot unions – USB and Confederazione Unitaria di Base – the latter instead gathered most of ILVA workers’ representatives, namely confederate unions in their metalworking categories: FIM, UILM and FIOM (Greco and Bagnardi, 2018).

In 2013, the Government led by Enrico Letta (Democratic party), decided to put the factory under the government’s supervision, appointing commissioners Enrico Bondi and Edo Ronchi.

Two different governments and few commissioners later, in 2018, ArcelorMittal acquired the former ILVA (Romeo, 2019).

In September 2018, ArcelorMittal and trade unions reached an agreement, which was signed at the Ministry of Labour and Social Policies, chaired by Luigi di Maio (5 Stars Movement). On the employment side, signature parties agreed to cease ArcelorMittal's employees from 13.800 to 10.700, resulting in 2.600 dismissals only in Taranto, while also providing a severance pay of 100.000 € (USB, 2018). On the production-pollution side, the agreement envisaged a 2.3 billion € investment envelope for both restoring production and environmental protection, in line with the 2012 AIA (Arcelor Mittal, 2017).

Despite these progresses, in November 2019, ArcelorMittal Italian CEO Lucia Morselli communicated to government Conte (supported by the 5 Star Movement and Centre-left parties) the company's decision to withdraw from the previous-year agreement, blaming "a government move to scrap immunity from prosecution over environmental damage" (Tomassetti, 2020). Negotiations were opened back again, and, finally, in December 2020, Giuseppe Conte's government and ArcelorMittal reached another agreement, envisaging the nationalization of the former ILVA group through state-owned Invitalia (Invitalia, 2021). The government immediately announced a new industrial plan, containing few foreseen innovations: first, the introduction of an electric furnace and, second, the construction of two DRI (Direct Reduced Iron) plants. The production target was in continuity with the previous ArcelorMittal industrial plan (ArcelorMittal, 2017) and so was the commitment to reach full employment in the plant by 2025 (Casula, 2020).

Meanwhile, as Italy committed to the objectives of the European Green Deal, Italian prime minister Giuseppe Conte also announced that "surely" the Taranto plant is going to transition to hydrogen (ANSA, 2020), thereby basically pledging to decarbonize the former ILVA. Such declaration was then translated into the Italian draft National Recovery and Resilience Plan (NRRP), published in January 2021 (Italian Government, 2021a). Here, at page 135 (*ibid.*), there is a reference to a 2 billion € investment for Taranto, aimed at implementing technologies for hydrogen production. Nevertheless, this commitment was not fully confirmed in the final version of the Italian NRRP, where the 2 billion € fund was not targeted anymore specifically to Taranto, but rather to the use of hydrogen in hard-to-abate sectors (Italian Government, 2021b). The new revisited commitment was complemented by two hydrogen-related projects (General Secretariat of the Council of the European Union, 2021: 290): for 2023, the realization of an industrial prototype to produce steel with hydrogen; and for 2026, the introduction of hydrogen in at least one steel plant. The most recent notable step in the history of former ILVA occurred in December 2021, when trade unions jointly mobilize and "self-convened" at the Ministry for Economic Development (FIM *et al.*, 2021) chaired by Giancarlo Giorgetti (The League) with a view to gather information about the future of the Taranto plant. There, the new Draghi government (supported by a broad coalition involving all major Italian parties across the political system, with the sole exclusion of Fratelli d'Italia and Alternativa) basically confirmed its 2020 pledges, only adding a new 4.5 billion € investment plan and, again, the willingness to use hydrogen (Palmiotti, 2021).

4. Assessing trade unions' positions on the eco-social-growth trilemma in the Taranto case

This section is dedicated to presenting the main findings of our empirical investigation, namely the interviews conducted with trade unionists in Taranto. The eco-social-growth trilemma is

used as an analytical framework to assess, first, trade unions' economic, social and environmental objectives and, second, to map and evaluate the (eventual) solutions that unions put forward to reconcile (or not reconcile) these objectives.

As stated in the introduction, the trade unions that our empirical work is concerned with are FIM, FIOM and UILM, i.e. sectoral branches of the three biggest labour confederations in Italy, and USB, a grassroots union. With respect to the different "weights" of these trade unions in the former ILVA, the UILM is majoritarian (with about 40% of the votes in the Rappresentanza Sindacale Unitaria, the collective body representing all workers), followed by FIM. FIOM and USB represent instead respectively about the 17% and the 15% of the workers (data for the year 2019, reported in: Greco, 2021). The workforce represented by these unions is mainly composed by men, who, according to one of our interviewees (Interview FIM a), have an average age of 40-45 years. Also, former ILVA workers are geographically diffused in the whole Taranto province, as well as in the close areas around Lecce, Brindisi and Bari and even in the nearby Basilicata region (Interview UILM).

Some environmental labour studies have already dealt with trade unions in Taranto. For instance, focusing on the post-2012 inquiry period, Barca and Leonardi (2016, 2018) found that USB – together with CCLLP – was promoting a working-class ecology take on the crisis in Taranto, hence criticizing the maintenance of steel production. Similarly, Greco and Bagnardi (2018) framed the latter as "environmentalist" positions, opposed to the "industrialist" views of confederal unions, namely FIOM, UILM and FIM. Through the lenses of a just transition approach, Tomasetti (2020) instead started to challenge the binary distinction between industrialism and environmentalism, by stating that trade unions in Taranto face more complex difficulties in coming up with feasible alternatives to the status quo. Greco (2021) further explored this claim by investigating Taranto unions' narratives in more recent years. Her study importantly found a broad consensus among confederal social partners about the possibility of reaching a "technological fix" to the Taranto crisis - stronger in FIOM than in FIM and UILM - while grassroots unions were found to be more critical about any transition model that does not fundamentally question the status quo.

We follow Greco's (2021) non-dichotomic approach and we apply a new framework to disentangle trade unions' positions on the various aspects of the Taranto crisis, as well as to evaluate the possible solutions that they promote. In doing so, we also attempt to provide an update with respect to previous studies, taking into account relevant recent developments - notably the ongoing attempt to nationalize former ILVA and the new EU and national commitment to decarbonize the economy.

4.1. The eco-social-growth trilemma in Taranto as framed by unions

The environmental sphere

Regarding the environmental sphere, trade unions mainly consider two issues in the Taranto crisis. On the one hand, there are urgent environmental problems that arises from the chemicals emitted in the productive process and that generate severe health implications, as recognised by the epidemiologic and chemical reports of the above-mentioned 2012 judicial inquiry (Forastiere *et al.*, 2012; Sanna *et al.*, 2012). Following the categories used by environmental labour studies presented in Section 2, we can frame these objectives as narrow in scale and scope, in light of their urgent and localized nature, as well as their attention to the sustainability of the lifeworld. In the words of the interviewed FIOM representative

“the Taranto plant problem is called: dioxin, PCB, Benzo(a)pyrene. Those uncontrolled emissions that come from the core of the plant and the heat area. They are, let’s say, terribly harmful for humans” (Interview FIOM).

On the other hand, there is climate change, i.e. a broad environmental concern. None of the unions interviewed can be seen as climate change deniers. They are all aware and not against – at least in principle – the ongoing efforts to combat global warming. However, as it will be discussed later, feasibility issues prevent unions from effectively supporting a cut in carbon dioxide emission, which constitutes the bulk of the greenhouse gasses emitted by former ILVA.

The social sphere

The social sphere traditionally represents the main concern of trade unions. In the case of Taranto, this mainly means pursuing a twofold objective. By one side, unions put the emphasis on employment, acknowledging how the former ILVA plant still represents a massive source of jobs in an area affected by high unemployment rates. Securing employment is presented as necessary to guarantee income through good wages, as expressed by the UILM interviewee:

“[the former ILVA] provides 30 million [€] salary per month. Subtract 30 million [€] from the Taranto GDP and you will just find ruins” (Interview UILM).

The other social objective that trade unions promote is health and safety on the workplace, which is “critical” according to USB (Interview USB) and FIOM:

“make the plant not harmful, stop polluting and killing workers: They are the most exposed. Sometimes we forget them, the workers that are on the plant” (interview FIOM).

The economic sphere

On the economic sphere, FIM, FIOM and UILM’s positions converge on the preservation of steel production. The justifications that they provide for this are not merely related to occupational concerns. Confederal workers representatives indeed assert that an industrialized country like Italy cannot and should not abandon steel production. First, they argue that this would result in an excessive import dependency, which would create additional costs for the country (Interview UILM). For the FIOM interviewee, the government has to decide

“[whether to] continue being one of the main industrial nation or not, but it is not an easy decision, because then you may have to import steel and you will become dependent” (Interview FIOM)

Second, the preservation of ILVA is framed as strategic by FIOM and as a matter of national interest by FIM:

“the plant produces for the whole Italian industrial system” (Interview FIOM);

“we cannot, as a country, abandon this part of steel production, which is the only integral circuit remained” (Interview FIM b).

As emerged from previous studies, a completely opposite position on the economic sphere is promoted by USB. Although they seem to have abandoned previous claims to cease production immediately, they are still offering a critical take on the viability and desirability to sustain the former ILVA plant, equating the latter to a sick patient:

“the factory is slowly dying, it is like a cancer patient that every day loses some blood” (Interview USB).

The eco-social-growth trilemma in Taranto

The figure below illustrates the eco-social-growth trilemma applied to the case of Taranto. At the corners of the triangle, we find trade unions' possible objectives related to the three spheres, as identified by our empirical investigation and summarized above. To address the interconnections between these objectives and, ultimately, to solve this trilemma, unions can propose different solutions, which vary according to whether they consider and give relatively equal importance to each of the three spheres. Following the logic behind the eco-social-growth trilemma, when a proposal aims to reconcile different goals, eventual trade-offs between goals would have to be turned into synergies. These trade-offs are represented by the segments of the triangle in the figure below. First, with respect to the socio-economic relationship, an integrated proposal would entail maintaining high – and good-quality – employment levels in the steel industry. Second, when unions aim to reconcile economic and environmental objectives, they do so by advocating for a greening of the steel production through ecological modernization. Finally, with regard to the socio-ecological nexus in the Taranto case, trade unions mainly address two trade-offs. The first is related to the negative impacts of chemical emissions on people's health and on healthcare in the Taranto area. The second instead concerns existing and future jobs losses – and other employment distortions – expected to arise from the transition towards a green production and employment models.

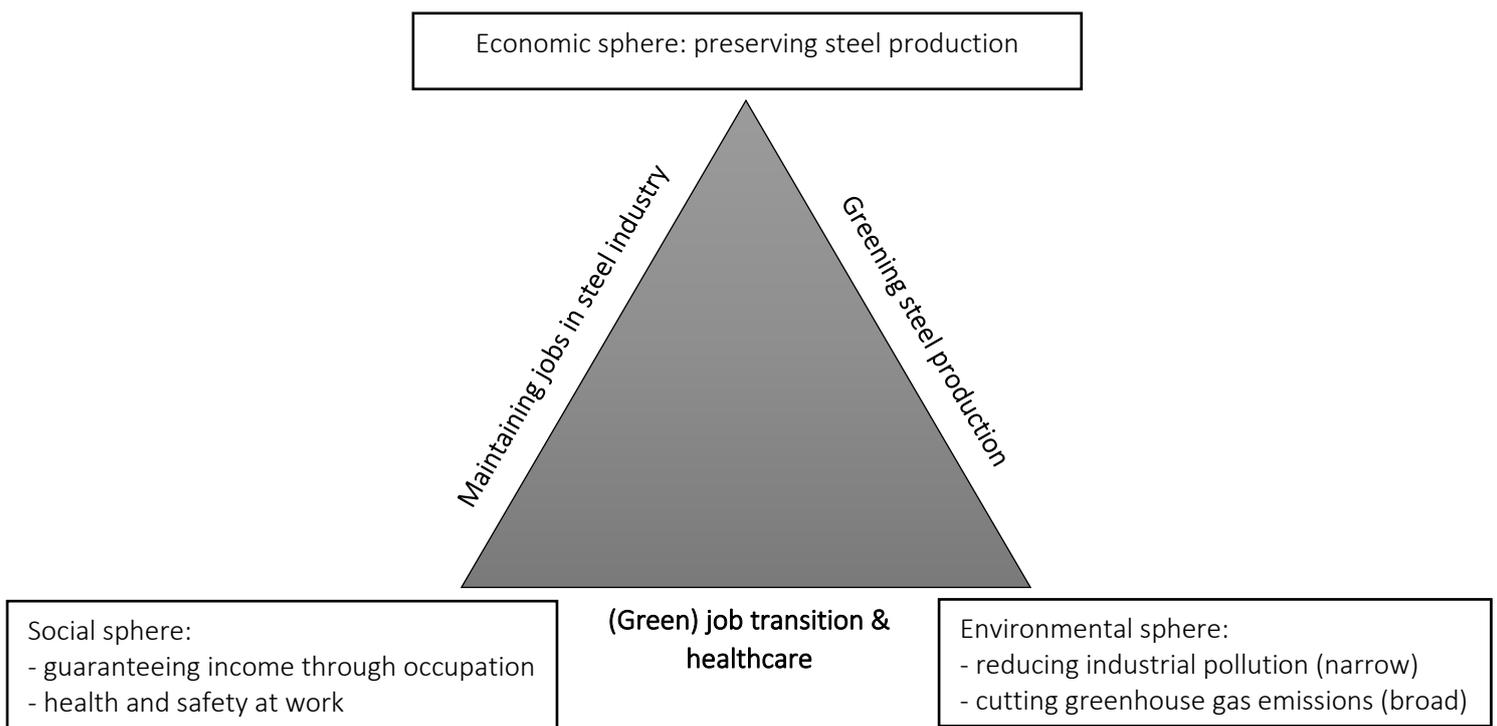


Figure 2. The eco-social-growth trilemma in Taranto

4.2. Trade unions' proposals to tackle the eco-social-growth trilemma in Taranto

Building on our interviews, as well as on existing documentary evidence, the present section maps the various possible solutions that unions actually consider, have considered or might have considered to tackle the eco-social growth trilemma in the Taranto case. Each proposal,

as presented by unions, is evaluated along the three analytical spheres - and sub-spheres - of the trilemma. A positive sign is attributed to a proposal if it aims to positively contribute to the objective of the (sub)sphere under consideration. A negative sign instead indicates that the objective is disregarded in the proposal. Finally, the “?” symbol refers to the situation where the attainment of the objective is presented as partial or uncertain in the proposal. The table below summarizes the findings of our assessment, which are then explained in details in the following paragraphs.

Table 2. Trade unions’ proposals to tackle the eco-social-growth trilemma in Taranto					
	Social objective(s)		Environmental objective(s)		Economic objective
	<i>Guaranteeing income through occupation</i>	<i>Health and safety at work</i>	<i>Cutting greenhouse gas emissions (broad)</i>	<i>Reducing industrial pollution (narrow)</i>	<i>Preserving steel production</i>
<i>Status quo</i>	+	-	-	-	+
<i>“Ambientalizzazione”</i>	?	+	-	+	+
<i>Decarbonization through hydrogen</i>	?	?	+	+	?
<i>Dismantling</i>	-	+	+	+	-

Status quo

The *status quo* proposal would imply preserving steel production as it is and the jobs and incomes that production currently provides. However, such a solution fully disregards environmental concerns of any kind, since it does not envisage an industrial transition towards ecological modernization. On the social and socio-ecological sides, it also would imply ignoring health and safety on the workplace and for the citizens of Taranto.

Right after the 2012 inquiry, confederal trade unions - FIM, FIOM and UILM - were leaning towards this position and were hence described as “industrialists” by the reference literature (Greco and Bagnardi, 2018; Barca and Leonardi 2016, 2018). However, as already shown by more recent studies (Tomassetti, 2020; Greco, 2021) and by our interviews, the maintenance of the *status quo* is not considered as a viable and desirable option anymore by any trade union, as voiced by the FIM representative:

“I am not in favour of a production regardless of everything, absolutely not” (Interview FIM a).

Dismantling

The polar opposite scenario to the *status quo* is the full *dismantling* of the former ILVA plant. In terms of the eco-social-growth trilemma, *dismantling* implies going against the economic objective of producing steel, as a way to ensure a fully-fledged environmental protection, as well as the health and safety of workers and citizens. All these objectives, in this view, could only be achieved through a complete shutdown of the emitting industrial plant.

The *dismantling* proposal emerged strongly in 2012, with a coalition of social actors and environmental NGOs – including among the most important CCLLP and Peacelink, a self-proclaimed eco-pacifist local NGO – political parties – the Five Stars Movement party (M5S) – and trade unions – USB – presenting this as the best solution for the crisis in Taranto (Greco

and Bagnardi, 2018; Barca and Leonardi, 2016, 2018). Between 2012 and 2018, this composite coalition of socio-political actors advocated against the economic objective of preserving steel production, due to its detrimental environmental and health by-products. However, this coalition disaggregated a few years later, due to a shift in the position of the M5S party. In September 2018, then M5S political leader and Minister of Labour and Social Policies Luigi Di Maio was the main promoter of the above-mentioned 2018 agreement between ArcelorMittal and confederal trade unions, which basically resulted in the ruling out of the possibility to cease steel production.

“Then came the M5S, that did its whole campaign [for the political election of 2018] pro-dismantling. They caught the votes and then what? Then they realized that it would have been impossible” (Interview FIM b).

Importantly for our analysis, this political development resulted in the USB becoming less vocal than it used to be about *dismantling*. While local social movements – mainly CCLLP - still remain favourable to the dismantling solution, in an open conflict not only with the M5S and the government, but also with confederal unions, USB’s position since 2018 is not so straightforward. The latter still remains strongly critical of how the ILVA crisis has been managed by both the Italian government and ArcelorMittal, especially with reference to the 2018 agreement. Despite USB does not explicitly propose the *dismantling* option anymore, in light of political impracticability, they still believe that the Taranto steel plant is “physiologically” and irredeemably destined to decadence (Interview USB). Perhaps for this reason, USB has yet to propose an actual alternative to *dismantling*.

All the other confederal unions interviewed, instead, have always positioned themselves against the *dismantling* scenario, due to its foreseen negative consequences in socio-employment terms. In particular, some interviewees underline how the already-precarious employment conditions should not be further exacerbated. FIM defines the current situation as a proper “social disaster” (Interview FIM b), which would be only further fuelled by the eventual closure of the steel plant, expected to cause around 20.000 new redundancies and significant income loss. The UILM representative fears that this could lead to a social conflict:

“here, if you close the gates, comes the real social revolution, I do not know how 15.000 persons that would lose their job will react” (Interview UILM).

Confederal unions also underline how there would not be any other viable economic alternative to steel production that could maintain the same occupational levels. FIM and UILM are particularly sceptical about reclamation:

“[the dismantling] would be a harm for the economy, for the nation and for Taranto, because nothing would be reclaimed” (Interview UILM).

Decarbonization through hydrogen

The third option at stake for trade unions, supported by Michele Emiliano, President of the Apulia Region, as well as by former Italian prime minister Giuseppe Conte (Palmiotti, 2021; ANSA, 2020), is the decarbonization of the former ILVA plant through a conversion to hydrogen. A reference to this solution, as stated before, can also be found in the Italian NRRP (Italian Government, 2021b). In terms of the eco-social-growth trilemma, decarbonization should – in theory – represent a “win-win-win” solution, as it is supposed to maintain steel production and provide jobs, while also attaining to both broad and narrow environmental objectives, i.e. respectively the reduction in carbon dioxide emissions and the elimination of the chemical wastes from the blast furnace production. Nevertheless, all the interviewed trade unions are sceptical about this scenario:

“if carbon dioxide was the problem, we would not resolve it” (Interview FIOM);

“Decarbonization? It is nonsense” (Interview USB);

“I have huge doubts about this idea of decarbonization” (Interview FIM b)

The main reason behind this opposition is the lack of feasibility of decarbonization, which, according to unions, is driven by three factors. The first is the current unavailability of a technology that could permit the industrial production of hydrogen-based steel. Second, hydrogen production cannot rely solely on the energy produced within the Taranto plant, but it would rather require an enormous amount of energy, which would, in turn, depend on the availability of sources like natural gas or renewables. Third, and related to the latter point, unions also highlight infrastructural perplexities:

“the Apulia region simply does not have the required infrastructure to bring the natural gas to Taranto” (Interview FIM b).

Beyond feasibility concerns, *decarbonization through hydrogen* is presented in the declarations of the political actors who support it – including already-mentioned Conte and Emiliano, but also Acciaierie d’Italia CEO Franco Bernabè (Palmiotti, 2021; ANSA, 2020) - as a plan to be implemented in the medium-long period. Trade unions are more sceptical, as they maintain that the implications of the use of hydrogen are still largely unknown. No evidence is available, to their knowledge, on the economic sustainability of a hydrogen-based production models, nor on the implications for health and safety on the workplace. Unknown would also be the employment consequences of a transition to hydrogen, as expressed by the FIOM representative:

“an equation exists for the integral circuit production: for every million tons produce, you can employ one hundred workers; with the electric cycle, about the half. With hydrogen [however], I do not know.” (Interview FIOM).

“Ambientalizzazione”

The so-called *ambientalizzazione* (which could literally be translated as *“environmentalization”*), originated as a FIOM proposal around 2018 (Greco, 2021; FIOM CGIL, 2019). Over the years, the latter has then also found consensus among the other two confederal unions, UILM and FIM (Interview UILM; Interview FIM b). Finally, now the government also supports this solution. *Ambientalizzazione* entails the transition to a hybrid system for the former ILVA steel site. First, this would imply constructing a 2.5 tons electric furnace, along with two direct reduced iron (DRI) plants. This way, the government is attempting to increase the total amount of steel produced per year in Taranto, as well as to achieve full employment for current employees (Palmiotti, 2021). Along with this transition, confederal unions are also demanding a revamping of the plant, which would basically imply providing the best available technologies (BAT) to the blast furnace production. The adoption of filters and other BAT are indeed expected to significantly cut the chemical emissions of the former ILVA. Opting for *ambientalizzazione* would hence imply keeping the production carbon-based. Coal - along with iron, ore and limestone – in fact is a key raw material implied in the blast furnace of Taranto’s integrated steel mill.

Unlike confederal unions, the USB expresses scepticism on this proposal, mirroring the organization’s general mistrust in the ability of politico-institutional actors to deliver on their promises. The interviewee from this grassroots union indeed recognized how

“[there is no] interest in revitalising the factory at a productive level and in resolving this dichotomy between health and work” (Interview USB).

If compared to the decarbonization option, *ambientalizzazione* represents a watered-down “win-win-win” solution to the eco-social-growth trilemma. It should allow to preserve steel production, to ameliorate health and safety on the workplace and to address narrow-scale environmental challenges, namely chemical pollution and its most severe implications for human health. Like decarbonization, although much less, the feasibility of *ambientalizzazione* also casts doubt in trade unions. Such doubts are related to the availability and price of two materials needed for a production based on electric furnace: scrap metal and natural gas:

“scrap metal is a product that fluctuates [...]” and “for the DRI production you need industrial quantity of gas” (Interview FIOM).

“for the electric you have to take into account a lot of things: scrap metal, realization, electricity, energy etc.” (Interview FIM b).

Unlike decarbonization, *ambientalizzazione* would not address all the different challenges of the trilemma. Indeed, it does not consider broad environmental concerns, since electric furnaces are expected to emit less carbon dioxide compared to current blast furnaces, but their activity would still be climate-damaging. Moreover, according to the current governmental plan, only a quarter of the entire steel production will be interested by this transition to an electric production cycle. Furthermore, confederal unions also call attention to the significant employment losses that this transition would entail (see the quote above from Interview FIOM). Despite these challenges, however, confederal unions still stick to the *ambientalizzazione* proposal and demand due public support to manage the occupational transition, which otherwise would lead, in the word of the interviewee from FIOM, to a “social butchery” (Interview FIOM).

4.3. Trade unions and politics

All trade unionists interviewed are critical with how the national government is handling the crisis in Taranto. In particular, they all agree that a general lack of transparency and vagueness characterises the current governmental positions, announced, yet never translated into any written document. Notably, the industrial plan is not available, as lamented by all workers’ representatives:

“there is not an industrial plan” (Interview FIOM);

“transparency does not exist, here they do not give you the contracts” (Interview USB);

“the last plan was an excel file, it was embarrassing” (Interview FIM b).

From our interviews, it also emerges how the history of the former ILVA has been characterized, at least in the last decade, by a seemingly insurmountable political inertia, which has notably resulted, first, in the above-mentioned absence of a public industrial plan since the one drafted by ArcelorMittal in 2018 and, second, in the general lack of programming for a hypothetical energy conversion of the plant from carbon to natural gas, or to hydrogen. Such inertia generates in the USB interviewee the fear that the crisis in Taranto will never actually be solved. Even less critical trade unions, like UILM, assert that, if the government will not act to implement its promises, these will remain dead letters, resulting in the progressive decadence of the Taranto steel plant:

“a series of announcements are at stake, but nothing concrete, and in the end, it would bring to the dismantling of the plant” (Interview UILM).

An example of this political inertia often invoked by our interviewees is the bad management by the Italian government - via Invitalia - of the majority purchasing of former ILVA. This is expected to take place in May 2022, but it is conditional to the withdrawal of the seizure order emitted in 2012 by the Taranto court. On this point, unions manifest a great uncertainty:

“according to which criteria should the judiciary revoke the seizure order?” (Interview FIOM);

“the judiciary will tell us: ‘what did you do in the last ten years?’” (Interview UILM);

“the plant should be released from seizure in June 2022, and the judiciary [...] have said that the withdrawal of the seizure order cannot take place because nothing has been done” (Interview USB).

Against this background, the financial resources recently mobilized by the European Union, such as those related to the Recovery and Resilience Facility and the Just Transition Fund, are generally welcomed by trade unionists. Such resources are seen as an unprecedented opportunity by confederal unions, even though their general mistrust in the actual ability of the Italian government to make good use of funds affect unions’ opinions about the foreseen implementation of these funds:

“this is an historical moment in which we have unseen funds, from The Just Transition FUnd to the NRRP, but we do not have any implementation projects...what will we do? Will we keep the debt and send back the unspent parts?” (Interview FIM b);

“this is the last resort, if we lose this one, I do not know who you will interview next instead of me [...] and we will restart from the ’60, when everyone escaped from catastrophic economic conditions” (interview UILM).

Finally, also interesting when it comes to trade unions and politics is their strategic alliances and conflicts with other socio-political actors. The example reported above – where USB coalesced with M5S, environmental NGOs and social movements in favour of *dismantling* from 2012 to 2018 – shows potential for unions to collaborate with other organized interests. However, this green-labour coalitions are still rare and unstable in Taranto, as different organized interests face severe limits to cooperation.

5. Conclusions

This study has investigated trade unions’ positions with respect to the so-called eco-social-growth trilemma in the paradigmatic case of the steel industry in Taranto, long affected by a severe crisis. After a literature review of the relevant research strands and after briefly reconstructing the historical background of the case, the paper has presented the findings of our empirical investigation. It has provided an assessment of trade unions’ objectives with respect to the three different dimensions of the crisis in Taranto: economic (preserving steel production); social (guaranteeing income through occupation; and health and safety at work); and environmental (reducing chemical pollution; and greenhouse gas emissions). Then, the paper has mapped and evaluated – through the lenses of the above-mentioned trilemma - four proposals of solution to the crisis put forward by unions through the years: *status quo*; *ambientalizzazione*; *decarbonization through hydrogen*; and *dismantling*. We have found that the three main confederal metalworkers unions - FIOM, FIM and UILM - all converge on the *ambientalizzazione* proposal, while USB does not explicitly endorse any of the four.

By proposing a novel analytical framework focussed on unions’ concrete proposals, the study can be seen as an attempt to offer a novel insight into the labour environmentalism literature, thereby also contributing to previous studies on the Taranto case and updating them to current developments, notably the new national commitment for decarbonization. Our findings raise three important reflections about the prospects and hurdles for trade unions to promote a just transition solution to the Taranto crisis.

First, we have argued that trade unions do not approach industrial crises as a “jobs vs environment” dilemma, but rather as an eco-social-growth trilemma, for which there are economic, social and environmental interconnected challenges for unions to consider. Even with their own proposal, FIM, FIOM and UILM go beyond the dichotomy between maintaining the *status quo* and *dismantling* production – i.e. beyond “environmentalism” vs. “productivism” – which is traditionally expected to characterize unions’ position in labour markets so heavily dependent on industrial activities. These unions rather seek to promote an alternative solution, by supporting an environmentally-oriented and just industrial transition and, so, trying to take into consideration all three interconnected spheres of the trilemma.

However, the second conclusive reflection is that not all proposals relying on a just transition approach are the same. The advent of decarbonization in the Italian and European political agendas has rather shed a light on the nuances of different unions’ environmental attitudes. In our case, through *ambientalizzazione*, confederal workers’ organizations only aim to target health-damaging chemical pollution. This means that *ambientalizzazione* could be seen as relying on a narrow just transition approach, in that it primarily targets an emergency and localized environmental issue impacting the sustainability of the lifeworld. Due to uncertainties and feasibility concerns instead, *decarbonization through hydrogen*, which could represent a broader just transition approach with a forward-looking view, is currently not endorsed by any of our interviewees. This said, however, the feasibility of a technological fix through *ambientalizzazione* also raises concerns. If *decarbonization through hydrogen* is a long period perspective, also *ambientalizzazione* would certainly not take place immediately. The revamping of the factory and the construction of electric furnaces and DRI plants could occur, according to the government, no earlier than 2025. Moreover, *ambientalizzazione* also remains a hypothetical solution, since the profitability of electric technologies will be subjected to the price and availability of natural gas. In general, every industrial reconversion is subjected to a certain path dependence, which, in the Taranto case, affects the feasibility not only of *decarbonization*, but even of the less-transformative *ambientalizzazione*. Path dependency here takes the form not only of a structural reliance on coal for the steel mill, but also of an historically-disadvantaged socio-economic starting point for the whole Taranto area.

The third and final conclusive reflection arises from our findings about the USB’s position and relates, like the previous point, to the way in which trade unions conceptualize just transition. Unlike the three major unions that all converge on *ambientalizzazione*, USB instead has historically held a more critical point of view about the crisis in Taranto. While, in the past, this resulted in the USB supporting the *dismantling* of the plant, now this union does not put forward a proper proposal anymore, as they acknowledge fatalistically how the steel factory is locked-in by political inertia and thus inevitably destined to decay. Therefore, to use the language of the reference literature, we can note that, while USB does not necessarily advocate for anti-industrialist, or “transformative”, positions anymore, it still does not find any viable solutions within the realm of industrial capitalism – as opposed to the “affirmative” approach of other unions that instead confide in ecological modernization.

In conclusion, few remarks can be raised with reference to our research findings, generating knowledge gaps and, consequently, potential avenues for future research. First, while FIOM, FIM and UILM have all been found to hold substantially the same positions, some differences might still exist between the three of them and these could be worth studying. For instance - as Greco (2021) points out – the three confederal unions seem to diverge in how strongly they promote *ambientalizzazione*. Second, this paper has focused specifically on *what* trade unions’ positions are. However, other studies would be needed to investigate *where* these positions

actually come from. In particular, this would imply delving more in depth into the causal role of institutions, path dependency – especially in industrial policy - and models of industrial relations in shaping unions' positions over time. Third, the politics dimension of labour environmentalism in the Taranto case should also be deepened, hence reconstructing the strategies - including conflicts and alliances with the government and other notable socio-political actors like environmental NGOs - that unions set up to influence decision-making. Finally, comparative studies juxtaposing the Taranto case to other cases of unions facing the eco-social-growth trilemma could allow us to elaborate on the extent to which our findings can be generalized beyond the specificity of our context of interest. This could be done for instance through cross-country comparisons, but also by studying how different unions in Italy behave depending on which sector and/or governance level (national, local, firm) they operate in.

List of interviews

Interview FIOM: Local-level FIOM representative. Taranto, 31st of January 2022.
Interview UILM: Local-level FIOM representative. Taranto, 31st of January 2022.
Interview FIM (a): Local-level FIM representative. Taranto, 31st of January 2022.
Interview FIM (b): National-level FIM representative. Taranto, 2nd of February 2022.
Interview USB: Local-level USB representative. Taranto, 3rd of February 2022.

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