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The social sustainability of European agriculture facing old and new challenges. Issues, methods and policies

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In the last couple of decades, the scientific and political debate, as well as the discourse in the broad society, gave a great deal of attention to the sustainability implications of the ways production and consumption are carried out worldwide (Scoones, 2007; Fisher & Barth, 2014; Verbanov, 2019; Rodriguez-Dono & Hernández-Fernández, 2021). Clear enough, this interest touches directly also the agricultural sector (Mockshell & Kamanda, 2018; Junker et al., 2019). At the same time, agriculture is both affected by consequences of unsustainable practices enacted within the sector, as well as by what is going on in other segments of the economy and of the society. This is true for all the three dimensions of sustainability: environmental, economic and social (El Bilali & Hassen, 2021).

However, so far, analyses about environmental sustainability, and partly about its economic dimension, advanced quite significantly both with respect to the concept itself and to its measures (Yu & Wu, 2018; Coburn at al., 2024). Differently, reflections on what social sustainability precisely is, which aspects it encompasses and on what are the most suited measures lag far behind (Latruffe et al., 2016). Probably the reason is that the topic still presents itself as extremely multifaceted, magmatic and elusive.

Notwithstanding, challenges and contradictions associated to old, still unresolved, structural knots and bottlenecks, as well as the ongoing social transformations and tensions, increasingly convey attention on it and filling the gap of knowledge has become truly urgent.

This urgency is also witnessed by the contents of the two perspective documents recently issued by the EU, i.e. "Strategic Dialogue on the Future of EU Agriculture" (Strategic dialogue, 2024) and "A Vision for Agriculture and Food. Shaping together an attractive farming and agri-food sector for future generations" (European Commission, 2025; Arfini et al., 2025). These documents -which aim at tracing the direction of the future pathways of the European policies for agriculture, food and rural areas- explicitly and implicitly address, among others, many aspects that fall in the domain of social

sustainability. Among these, it is worth to cite a few ones on which the two documents particularly insist.

At the very root of the many social threats faced by European agriculture and rural society there is its acute demographic imbalance. A progressively ageing and shrinking workforce and population is incapable of assuring vitality and continuity to the primary sector and rural areas. In many EU countries the problem dates from decades ago, in other is more recent, as it is anyhow related the so-called agricultural exodus. However, it is nowadays fuelled by increasing competition among different production systems worldwide and by the difficulties of family businesses to survive in global value chains dominated by giant firms in the upstream and downstream stages. All these pressures end up in reducing the attractiveness of agriculture, especially for younger potential entrants. This contributes to the depopulation and marginalization of rural areas, creating a vitious circle in which the deterioration of living conditions acts as an additional deterrent to enter the sector. Difficult access to land -especially the better quality, more productive ones and in densely populated areas- exacerbates the demographic imbalance.

Beside issues related to family farms and family labour force, the agricultural labour market mixes up marginality and precariousness that, together with the even more complex migration issues, pose serious social sustainability threats. Gender justice is also part of the social sustainability issue of European agriculture as women's working conditions are still affected by inequalities.

Environmental degradation and climate change, of which agriculture is both victim and responsible, are not only relevant issues in themselves, but also have deep implications on farmers' health as well as on healthiness and safety of the products and services that the sector delivers to citizens and consumers. As for the healthiness of food and diets, this falls not only in the domain of agriculture and of the processing industry, but it is also -or even primarily- connected to the consumer's choice, which, in turn, relies on the so called multidimensional "food environment", made of knowledge, information, traditions and habits, socio-cultural influences and norms, public food procurement and policies against food poverty, and so on and so forth. All these features crosscut all the spheres of sustainability, fully falling also in its social domain.

From this very quick review it clearly emerges how relevant the topic of social sustainability is worldwide and how much urgent some of its facets are for the future of the EU agriculture and rural society. This is why in 2024 AIEAA decided to devote its annual Conference to the theme. The Conference, held in Bari June 20-21, was titled: *The social sustainability of European agriculture facing old and new challenges. Issues, methods and policies*. This Special Issue of BAE collects a selection of 7 papers presented at the 13th AIEAA Conference that contribute to the scientific debate of sustainability in its broad sense.

The first paper here included is from Anton et al. (2025) from OECD. This is the expanded text of one of the keynote lectures at the Conference and is titled *Towards a new policy narrative for agriculture: capturing social sustainability issues*. The paper provides a broad reasoning about the different aspects encompassed by social sustainability issues in agriculture. It starts by accounting for the many difficulties in the definition itself. In providing the boundaries of the concept, the authors focus on contextual specificities and cross-sector implications. The core question addressed is about the lack of data and consequent difficulties in measurement. The authors review the path followed along two decades by researchers and institutions for defining and measuring the environmental dimension of sustainability, in order to grasp insights that may be useful to the additional challenge posed by the social sustainability, most recently placed in the spotlight. In the search for an easy measure that is also highly correlated with the main social issues in agriculture, they propose to first look at indices of income inequalities.

The paper by Martella et al. (2025) "*Promoting natural capital conservation: a bet for socioeconomic development of marginal areas*" revolves around socioeconomic marginalization and environmental sustainability. The aim of the paper is to explore factors which can promote/enhance the well-being of marginalized areas through the push of the local economy. The focus is on a small marginal area in Central Italy where the ecological balance is positive. Based on this premise, the authors propose a branding strategy that leverage of environmental sustainability of local production, to get the goal of raising the market value of the products and the farmers' income, thus contributing to the protection of their natural capital and to sustaining the local economy of the marginal area.

The third selected paper by Moino et al. (2025) is titled *Bridging the Gap: The Impact of Compensatory Measures on Mountain Farming in Piedmont*. The study presented, based on 3,171 observations from FADN 2012-2022, assesses the impact of the Rural Development Program on income disparities between mountainous and non-mountainous areas in Piedmont, Italy. Findings of a pooled multivariate regression indicate that significant income disparities are primarily

observed in small farms specialized in cattle and sheep and goats. Compensatory allowance support helps to partially reduce the gap. Policy strategies to entirely bridge the gap are discussed.

Mazzulla and Raggi (2025) are the authors of a paper titled *Do economic performance and innovation have a relationship? Evidence from Operational Groups in the Italian agri-food sector*. They investigate the potential interdependence between an environment that fosters innovation and the economic performance of agriculture. More in details, they seek to determine whether the economic performance of farms in regions with established Operational Groups (OG) is better than that of farms where OGs have not yet been implemented. Data come from Innovarurale website and ORBIS database (2013-2022), and estimations include three staggered difference-in-differences (DID) models. Results show a positive association between the presence of OGs in a region and an improved economic performance.

The paper by Okoye et al. (2025) is titled "*Technological Integration in Agricultural Practices of a sample of Italian livestock farms*". Based on Census data, the paper explores the current state and determinants of digital technology adoption across Italian livestock farms. A logistic regression model assesses the likelihood of technology adoption. Results show that dairy cattle and buffalo are more likely to integrate digital tools like decision support systems, cloud services, and monitoring devices. Differently, meat cattle, small ruminants, and pig farms lag. Key determinants include broadband connectivity, ownership structure, education and age.

The adoption of digital technologies is at the core also of another contribution titled *Assessing the social impacts of Digital Agriculture Technology Solutions: a practical tool*, by Bianchi et al. (2025). The Authors argue that Digital Agriculture Technology Solutions (DATSs) can improve the social benefits for the farmers. Integrating top-down and bottom-up approaches, a Social Sustainability Assessment Framework was developed and tested on 60 farmers across 20 European countries, with a heterogeneous composition. The research allowed for an investigation of the social impacts of DATSs in terms of labour evolution, education and learning, and generational change. The results demonstrate the positive effects of DATSs on the social sphere of sustainability, as well as the importance of integrating this type of analysis in their evaluation.

Another paper included in this selection, by Ferro et al. (2025), addresses workers' welfare issues. The contribution is titled *Impacts of heatwaves on agricultural workers: An analysis of adaptation measures* and evaluates the effectiveness of different coping strategies. Exploratory interviews and structured questionnaires were employed to identify key challenges; data were collected from nine farms located in Northeastern Italy, all committed in improving working conditions. The so-called Analytic Hierarchy Process was used to evaluate the perceived effectiveness of adaptation measures according to three criteria: acceptability, flexibility, and timeliness. Findings indicate that, in the absence of adaptation strategies, productivity losses may reach up to 30%. The study underscores the need for structured thermal risk assessment protocols and provides recommendations to worker-centred adaptation policies in agriculture.

Adenuga and Jack (2025) contribute with the paper *Factors influencing land rental market participation: a case study in Northern Ireland*. The objective of their study is to analyse factors influencing participation in the land rental market in Northern Ireland where the sale of agricultural land is limited with a constrained tenanted sector. Principal component analysis and multinomial logistic regression model are used on data from 1,466 farmland owners. Results show that land rental market participation is impacted by motivational and socioeconomic factors. Authors argue that incentives for early and easy retirement of older farmers will increase land access of young farmers and consequently improve the land rental market.

The last paper included in this selection is titled *Agriculture and Environment: the inclusion of Italy in the SIMPLE and SIMPLE-G models* and is by Vaquero Piñeiro et al. (2025). The paper explores the interactions between economic and environmental issue in agriculture and proposes an expansion of the Simplified International Model of Agricultural Prices, Land Use and Environment (SIMPLE) model – which addresses national agricultural trends-plus its gridded version (SIMPLE-G) – which offers a detailed, spatially disaggregated analysis. This second model allows for assessing local impacts. In particular, they build a new database for Italy, in order to compute both aggregate and georeferenced data for the country.

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