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The contribution of research to agricultural policy in Europe

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Abstract. This paper surveys some of the key themes in European agricultural policy research in recent decades. It identifies three main drivers of this research: a gradual broadening of the scope of the discipline in response to changing political priorities and values; an enlarged toolbox of policy instruments that has raised new questions and required the development of new modes of analysis; and the availability of new data sources, increased computing power, as well as the introduction of new methodological advances from economics, statistics and psychology that have opened the way to new and more powerful analytical tools. Particular attention is paid to direct payments and agri-environment-climate measures as examples of new policy instruments that have driven the research agenda. The paper concludes by identifying requirements to ensure that agricultural policy research remains vibrant and relevant in the future.

Keywords: agricultural policy, Common Agricultural Policy, direct payments, agri-environment-climate measures, policy research.
JEL Codes: Q18, Q58.

INTRODUCTION

This paper discusses some significant trends in European agricultural policy research in recent decades as a contribution to the celebration of the 10th anniversary of the *Bio-based and Applied Economics* journal published by the Italian Association of Agricultural and Applied Economics (Santeramo and Raggi 2021). This field of enquiry relates to the implementation of practical agricultural policy. In Koester's words, 'Agricultural policy is the entirety of all efforts, actions and measures aimed at regulating, influencing or directly determining the course of economic activity in the agricultural sector' (Koester 2020, 2). Agricultural policy research includes analysis of the objectives of agricultural policy; diagnosis of actual outcomes compared to policymakers' objectives or overall social welfare; the evaluation of interventions and instruments that might bring the actual situation closer to the desired policy outcome; and the reasons for policy change. While political economists and political scientists have been concerned with the *why* of government intervention in agricultural markets, agricultural economists have been more concerned with the *how* and *how well* – how food and agricultural policies should be designed to achieve specific objectives and how well

policies have succeeded in their aims. This review is confined to the contribution of agricultural economists. The frame of the discussion in this paper is further narrowed by only tangentially considering issues to do with the food industry and agricultural trade, both of which are inextricably bound up with agricultural policy, but which are discussed in separate review articles in this celebratory series (Mazzocchi, 2021; Olper and Raimondi, 2021).

Reviews of agricultural policy research in Europe tend to take the Common Agricultural Policy (CAP) as the starting point and examine the CAP's impact on various policy dimensions, for example, agricultural income (Szerletics and Jámbor 2020), environment (Alliance Environnment 2017), jobs (Schuh et al. 2016), developing countries (Blanco 2018), nutrition and health (Recanati et al. 2019), or several dimensions at once (Pe'er et al. 2017). One of the few attempts to systematise the evolution of agricultural policy research, albeit still rooted in the dynamics of CAP reform, is Erjavec and Lovec (2017). This paper notes the shifting focus of the CAP over time and proposes that this requires greater cooperation between disciplines in order to broaden the theoretical underpinnings of explanations for this shift. Their paper builds on the idea that successive CAP reforms represent a paradigm shift (meaning changes not only in mechanisms but also in principles and objectives (see also Skogstad 1998; Daugbjerg and Swinbank 2011 for elaboration of the role of paradigm shifts).

This paper has a more modest objective. It is neither intended as a systematic review of recent European agricultural policy research nor does it enter the debate whether recent reforms of the CAP can be attributed to paradigmatic changes or not (Rac, Erjavec, and Erjavec 2020). It presents a narrative describing recent trends in agricultural policy research and the factors that have driven these changes. Three factors are highlighted in subsequent sections: a gradual broadening of the scope of the discipline in response to changing political priorities and values; an enlarged toolbox of policy instruments that has raised new questions and required the development of new modes of analysis; and the availability of new data sources, increased computing power, as well as the introduction of new methodological advances from economics, statistics and psychology that have opened the way to new and more powerful analytical tools (Figure 1).

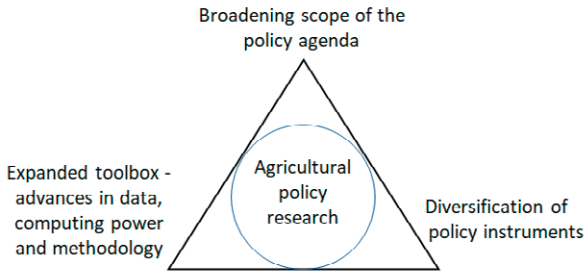

Figure 1. Major influences on European agricultural policy research. Source: Own elaboration.

BROADENING SCOPE OF THE POLICY AGENDA

Agricultural policy analysis has always been an applied discipline that has responded to the changing priorities and objectives of practical agricultural policy. The competence for agricultural policy in the EU is formally shared between the Union and the member states, although the Treaties require that the Union shall define and implement a common agricultural policy with common objectives and a common implementation. Thus, one driver of the changing agricultural policy research agenda has been changing priorities and objectives of the CAP. Another driver has been the growing awareness of the market failures around agricultural production, both in terms of the under-provision of public goods but even more sharply the external costs imposed on society in terms of both health and the depletion of natural capital. Yet another driver has been shifts in social values and expectations around the way food is produced, notably with respect to animal welfare, quality attributes, short supply chains and farm structures.

It should be stressed that new objectives have been layered on top of existing ones rather than substituting for them. Further, the emergence of new objectives has been a gradual and evolving process rather than marked by sharp discontinuities. Daugbjerg and Swinbank (2016) introduced the idea of policy layering into agricultural policy analysis. They characterise the path of CAP reform, with its redesign of EU farm price support into WTO-compatible decoupled payments, together with the greening of the CAP, as a stepwise process of dual policy layering aimed at addressing new policy concerns while retaining the core objective of farm income support. Their objective was to suggest a causal relation between policy layering and the sustainability of the reform path. Here, I use the concept of policy layers simply to highlight that new policy objectives have emerged in addition to earlier concerns rather than replacing them. An illustration of the evolution in agricultural policy priorities is shown in Figure 2. I now show how agricultural policy research has reflected this growing multi-dimensionality.

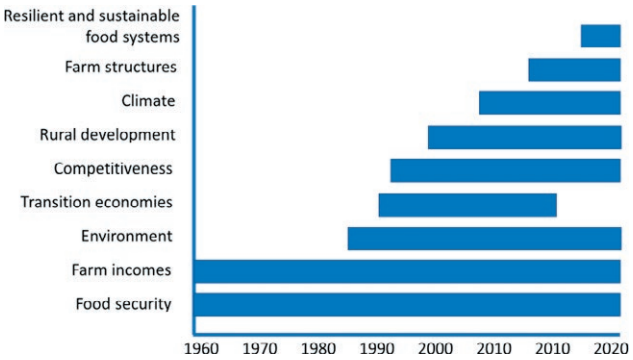

Figure 2. Overview of changes in CAP priorities over time. Source: Own elaboration.

Ensuring food security

Assuring the availability of food supplies and at reasonable prices are among the five objectives specified for the CAP in the original Treaty of Rome and which have remained unchanged to this day. The tagline on the European Commission's webpage explaining the CAP continues to affirm that 'The common agricultural policy supports farmers and ensures Europe's food security'.[1] Despite the harrowing experiences of food shortages in the immediate aftermath of the second World War, national-level food security has not been an issue in the EU since before the CAP came into force, though individual households can suffer food insecurity due to lack of means to purchase sufficient nutritious food rather than due to any problems of availability (Borch and Kjærnes 2016). Nonetheless, food security continues to be prominent in agricultural policy debates, although with very different framings of how the objective is interpreted (Candel et al. 2014), including the appropriate role for European agriculture in contributing to global food security. The COVID-19 pandemic and the associated lockdowns underlined the potential vulnerabilities in food supply and the issue has once again become live, even though it is generally recognised that EU food supply chains proved remarkably resilient to date during the pandemic (Montanari et al. 2021; Meuwissen et al. 2021). The Commission has since announced a contingency plan for ensuring food supply and food security in times of crisis which includes a food crisis response mechanism (European Commission 2021b). The pandemic also triggered a literature reflecting more widely on the conditions for resilient food systems and the measures needed to realise them, which we consider further below.

[1] European Commission, 'The common agricultural policy at a glance', https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/cap-glance_en, accessed 2 September 2021.

Support for farm incomes

Income issues in agriculture refer to the level, stability, and distribution of income (Finger and El Benni 2021). The objective of 'ensuring a fair standard of living for the farming community' is also a Treaty objective, although there has been much debate over whether the Treaty wording sees this as a stand-alone objective or as the consequence of increased productivity and structural change. There is no doubt that for policymakers and farm organisations support for farm incomes is a major justification for the CAP. The Commission regularly produces a comparison of average farmer income (measured per work unit of family labour) with average gross wages and salaries in the total economy to show that farmers' income are 'still lagging behind', while emphasising that direct income support payments 'partially fill the gap between agricultural income and income in other sectors' and 'remain an essential part of the CAP' (European Commission 2017; 2018a).

Whether there is indeed an income gap between farm and non-farm incomes and the extent to which this reflects agriculture-specific characteristics is a matter of definition and measurement (Hill 2019). Taking its cue from the Treaty reference to 'standard of living for the farming community', the European Court of Auditors has argued that the disposable income of the farm household is the relevant indicator for family farms but that relevant data to make comparisons on this basis are not available (ECA 2016). Such data are collected in the EU Survey on Income and Living Conditions (EU-SILC) but the small number of farm households in this survey makes it difficult to draw valid conclusions. By pooling these data across EU countries, Rocchi, Marino, and Severini (2020) find evidence that, on average, farm household incomes are lower than in non-farm households and even more so if the comparison is made with self-employed households in the non-farm sector. Controlling for observable differences such as age, education, marital status and health status markedly reduces the size of the disparity, as does accounting for a wider definition of income to include nonmonetary factors, but it does not completely eliminate it.

In addition to these observable characteristics that can account for differences in income, non-observable characteristics might also differ systematically between the two population groups. For example, unobservable preferences might determine the sorting of households into the farm sector while unobserved characteristics, such as skills, might affect incomes. Marino, Rocchi, and Severini (2021) revisit the EU-SILC dataset using a fixed effects regression methodology to control for these

individual unobservable characteristics. Again, the raw data show that farm household incomes are much lower than for nonfarm households, particularly in the newer member states, but there are also significant differences in observable characteristics. By further controlling for unobservable characteristics, their conclusions are revised. Broadly-defined farm households still generally have a lower household income than comparable non-farm households but except in the newer member states the differences are not significant. However, narrowly-defined farm households (those mainly dependent on their farm income) are better off than comparable non-farm households in nearly all comparisons. They further find that being self-employed in agriculture instead of in other industries no longer represents a relative disadvantage across the EU countries.

To summarise, this research confirms that farm household incomes are on average lower than non-farm household incomes across the EU, though with important differences in the size of the disparity across countries. The conditional income comparisons identify the factors that account for this and it appears sector-specific issues related to working in agriculture are not an important explanatory factor. It can be noted that the income of farm households in the dataset includes support payments under the CAP as well as remuneration from the ownership of substantial farm assets including land. Furthermore, the European Commission data, even if not helpful in throwing light on relative standards of living, are still important in highlighting the relative difference in labour productivity between the two sectors which will have implications for future structural change.

Promoting rural development and employment

The Treaties note that, in working out the common agricultural policy, 'account shall be taken of the particular nature of agricultural activity, which results from the social structure of agriculture and from structural and natural disparities between the various agricultural regions'. The Treaties also specify territorial cohesion as an EU objective, with the aim of reducing disparities between the levels of development of the different regions paying particular attention, *inter alia*, to rural regions. The socio-economic disparities between rural and other regions are well documented. This led in 1999 to the introduction of a common rural development policy as the second Pillar of the CAP, building on precedents emerging in the previous decade (the Commission's Communication on *The future of rural society* COM (88) 501 in 1988 marks the beginning of a territorial rural policy). Rural development policy has a complex series of objectives, including modernisation of the agricultural sector, integrating environmental concerns, generational renewal, and broader socio-economic development particularly emphasising community-led local development and job creation. However, overall expenditure on territorial measures within the CAP has always been low. Recurring themes include the desirability of moving towards a more integrated concept of rural development built around a 'place-based' approach, developing more explicit synergies with EU cohesion policy, and focusing on the endogenous development of territorial capital and particularly the role of LEADER groups (Dax and Copus 2016). Most recently, the Commission's proposed long-term vision for rural areas, accompanied by proposals for a Rural Pact and a Rural Action Plan (European Commission 2021a), will no doubt stimulate a further wave of rural research.

Integrating environmental concerns

The integration of environmental goals into the CAP began in the 1980s with the growing awareness of the adverse environmental consequences of more intensive agricultural practices but also of the role that farmers can play in terms of management of natural resources and landscape conservation. Attention shifted to the interactions between agricultural production and water, air, soil, landscape and biodiversity. Agricultural pollution issues were addressed mainly by regulation, while the model of paying farmers to provide desired environmental outcomes was made mandatory for member states in the agri-environment regulation that accompanied the MacSharry CAP reform in 1992 (Latacz-Lohmann and Hodge 2003). Environmental cross-compliance for those in receipt of CAP payments was introduced in the Fischler 2003 CAP reform, while the 2014-2020 CAP saw the introduction of a greening payment in Pillar 1 requiring farmers to follow three specific practices seen as beneficial for climate and the environment (Matthews 2013). The huge literature stimulated by these developments is discussed later in the paper.

The political agreement on the CAP post 2020 includes a revised green architecture where the greening payment conditions have become part of a revised cross-compliance (now referred to as enhanced conditionality), while at least 25% of a member state's direct payments envelope must be allocated to eco-schemes to fund measures beneficial to the climate and environment as well as animal welfare. The urgency to strengthen interventions to improve environmental outcomes on agricultural land has been underlined by the specific

targets set out in the Commission's Farm to Fork and Biodiversity Strategies to reduce the use of pesticides, mineral fertilisers and antimicrobials, to increase the area under organic farming, and to reserve more space for nature on farmland (European Commission 2020a; 2020b). Whether the implementation of the new green architecture in member state CAP Strategic Plans will be up to the challenge of achieving these targets will likely become a major focus of agricultural policy research in the coming period (Baldock 2020).

The economics of transition

A specific issue that attracted the attention of agricultural policy researchers in Europe after 1989 and the fall of the Berlin Wall was the economics of transition in agriculture from central planning to a market economy (the countries affected included not only those that later become EU members, but also the Balkans, Russia, Belarus, Ukraine and Moldova, Transcaucasia and Central Asia). The socialist system left a legacy of a badly distorted economic system and prices. The institutional and relative price changes associated with the reorganisation of this system resulted in major disruptions and immediate declines in investment and output. State-owned assets such as input supply, credit and food processing and distribution companies were privatised as were state-owned farms using different privatisation models (e.g. direct sale, vouchers). In those countries where land had been collectivised, land was either restituted to former owners, physically distributed to farm workers, or ownership was transferred to workers through certificates. Nonetheless, the share of land now farmed by large corporate farms in many of these countries remains very high, though often co-existing with many very small-scale individual farms that produce only for their own consumption (semi-subsistence farms). These institutional changes gave rise to a significant research effort addressing issues such as trade competitiveness (Bojnec and Fertő 2008; 2015), price reforms (Bojnec and Swinnen 1997; Anderson and Swinnen 2008), farm restructuring, privatisation and land reform (Koester 2005; Swinnen 2009), and productivity growth (Gorton and Davidova 2004).

This research effort was extended after 2000 to the implications for the CAP of the accession to the EU of the former Soviet-bloc economies in central and eastern Europe. Both the importance of agriculture in these economies, particularly in employment terms, as well as the low productivity and consequential low incomes of those working in agriculture, were seen as posing a financial threat to EU agricultural policy which was still largely conceived as an income support policy for farmers (Bojnec 1996; Gaisford, Kerr, and Perdikis 2003; Hartell and Swinnen 2017). Many papers have also focused on the performance of the agri-food sector in these economies after accession (Csáki and Jámbor 2013). As institutional structures have stabilised the topic of transition economics is one of the few layers that has now largely disappeared, although comparisons of the performance of older and newer member states within the EU continue to attract the interest of researchers (Csáki and Jámbor 2019).

Pursuing competitiveness

Increased productivity is also one of the Treaty objectives for the CAP. Post-war agricultural production in Europe increased dramatically with the adoption of mechanisation, chemicals, intensive livestock breeding, new seed varieties and the extension of irrigation (Martín-Retortillo and Pinilla 2015). Increased production was supported with high tariffs against imports and the use of export subsidies to dispose of surpluses. During this period of "Fortress Europe" (cost) competitiveness was given little explicit attention. This began to change with the 1992 CAP reform that began the process of switching CAP support from the product to the producer. A decade later, the Commission reflected on the success of this move in promoting greater market orientation and competitiveness when introducing the Mid-Term Review (European Commission 2002). This focus on market orientation has been maintained through successive reforms. One of the nine specific objectives for the CAP post 2020 is 'to enhance market orientation and increase competitiveness, including greater focus on research, technology and digitalisation'.

Productivity is an important determinant of competitiveness in the longer term and can be measured using either parametric, non-parametric or index number approaches (Latruffe 2010).

Policy researchers have been interested in measuring the rate of growth in total factor productivity; in differences in relative productivity across member states; and in whether productivity levels are converging over time (Baráth and Fertő 2017). Developments have taken place in measuring farm level productivity using new estimation techniques to address classical problems of endogeneity and identification when trying to estimate production functions using farm level data (Sauer et al. 2021). Contributions have sought to identify the factors responsible for productivity trends, building on the decomposition of productivity growth into technical change (shifts in the technical frontier), technical efficiency change

(catching up with a shifting technical frontier), scale efficiency change, and efficiency change due to changes in the mix of inputs and outputs. There have also been attempts to integrate the use of environmental resources into productivity measures led by the OECD Network on Agricultural Productivity and the Environment. Finally, researchers have examined the effectiveness of policies to stimulate productivity growth (Viaggi 2015; Zezza et al. 2017; Détang-Dessendre et al. 2019). Relevant work has been done by the Standing Committee on Agricultural Research (SCAR) in developing the concept of Agricultural Knowledge and Innovation Systems (AKIS) as an interactive innovation system involving farmers, education, extension and research (SCAR 2019).

Addressing climate policy

Successive reports by the International Panel of Climate Change have warned about the dangers of anthropogenic climate change. The Paris Agreement which has the objective to limit global warming to well below 2˚C and preferably below 1.5˚C compared to pre-industrial levels entered into force in 2015. To achieve this temperature goal, the parties including the EU have committed to achieve a balance between emissions by sources and removals by sinks in the second half of the twentieth century, on the basis of equity. The European Climate Law adopted in 2021 commits the EU to reach climate neutrality by 2050.

Agriculture is both affected by climate change and a contributor to it. Agricultural emissions contribute around 11% of total EU emissions while the land use, land use change and forestry (LULUCF) sector is a net sink. Policy research has investigated the impacts of climate change (Bozzola et al. 2018; Van Passel, Massetti, and Mendelsohn 2017), the ability of farmers to adapt to climate change (Moore and Lobell 2014), and the mitigation potential of agriculture, using marginal abatement cost curves to shed light on the cost-effectiveness of different interventions (De Cara and Jayet 2011; Eory et al. 2018; Pérez Domínguez et al. 2020). The literature on policy design to bring about emissions reduction in agriculture in an efficient way remains surprisingly underdeveloped (Ancev 2011; De Cara and Vermont 2011; Grosjean et al. 2018) but the Commission proposal in the Farm to Fork Strategy to introduce a carbon farming initiative to reward farmers for carbon sequestration may spark greater interest in market-based approaches. Climate action has been an explicit objective of the CAP since the 2007-2013 programming period. Evaluations suggest that the measures taken to date have had a very limited impact on reducing agricultural emissions, although some measures may have helped to reduce emissions in the LULUCF sector (Alliance Environnment 2019; ECA 2021). The Commission's recent Fit for 55 package of legislative initiatives designed to achieve the more ambitious greenhouse gas emissions reduction target included in the Climate Law for 2030 will increase the need to reduce agricultural emissions in the coming CAP programming period (Matthews 2021).

Farm structure concerns

Interest in farm structures arguably goes back to the early years of the CAP when the then Agriculture Commissioner Sicco Mansholt proposed to offer financial incentives to drastically reduce the farm population to release land to enable remaining farms to grow to a viable size. However, the regulations that followed were only a pale shadow of the original proposal (Stead 2007). The central role of the family farm in the European model of agriculture is taken as a given, although nowhere explicitly stated as an agricultural policy objective. The eastern enlargements of the EU in 2004, 2007 and 2013 radically altered the farm structure distribution by introducing a significant duality. On the one hand, a large number of farm holdings were now subsistence or semi-subsistence farmers (Davidova 2011). On the other hand, the conversion of former collective or state farms into joint stock companies in some new member states created a new type of farm holding that was virtually unknown in the older member states (Maurel 2012).

By the middle of the following decade political concern was growing over trends in farm consolidation and farmland concentration. For some, the focus has been on land grabbing and the rise of large-scale land deals (van der Ploeg, Franco, and Borras 2015; Kay, Peuch, and Franco 2015); for others, it is safeguarding the position of the family farm (Davidova and Thomson 2014; Hennessy 2014); for some, it is opposition to industrial farming and the growth of 'mega' farms (Greenpeace 2019); for others, the issue is generational renewal (European Commission 2018d; Zagata et al. 2017); while yet others focus on the decline in the overall number of farms and its impact on rural vitality. Common to all is the view that current patterns of farm structural change should be halted or even reversed (Falkenberg 2016). This concern over the pace of structural change has been forcefully articulated by the current Commissioner for Agriculture and Rural Development Janusz Wojciechowski on many occasions since he took up office. However, the Commission's own figures showing the disparity in the returns per work unit in agriculture relative to the rest of the economy suggests

that the outflow of labour and thus farm consolidation will continue for some time to come.

Resilient and sustainable food systems

In recent years, the issue of resilient and sustainable food systems has moved centre stage in recognition of the multiple and interrelated challenges they face including poor diets, poor health outcomes, food waste, biodiversity loss, environmental degradation, resource scarcity, inequality and climate change at both the global and EU levels (European Commission 2020a; SAPEA 2020; SCAR 2020; Webb and Sonnino 2021). The food systems approach links these issues together, in contrast to sectoral analyses that look at the individual issues separately. The adoption of the UN Agenda for Sustainable Development in 2015 with its 17 Sustainable Development Goals has given further impetus to this research direction (Scown and Nicholas 2020), as has the apparent vulnerabilities in food supply chains revealed by the COVID-19 pandemic (Bisoffi et al. 2021).

Food systems encompass the entire value chain from ecosystem services to primary production, processing, packaging, distribution, retailing, food service, waste stream management, safety assurance, to consumers, their nutrition, the food environment and diet-related diseases. Sustainable food and nutrition security has been defined as the capacity of a food system to deliver food and nutrition security in an environmentally, economically and socially sustainable manner, thus combining nutrition and health with a social-ecological systems perspective (Zurek et al. 2018). The food systems perspective draws attention to the interactions, including synergies and trade-offs, between different policy domains and levels of government. There is a strong normative element in this literature. Many studies conclude that 'business as usual' is no longer a viable option and that radical system-wide change is required. Their aim is to identify workable paths towards a healthier, more socially just and environmentally sustainable food system (SAPEA 2020).

Achterbosch et al. (2019) review the way in which food systems thinking has been reflected in EU research grouped around themes such as food system governance; sustainable diets; food, nutrition and health; agroecology; agricultural innovation; alternative methods of food distribution; food waste and the circular bioeconomy; and development. The food systems literature draws attention to new research questions such as the future role of animal agriculture in Europe; the most effective ways to reduce food waste and to build a circular bioeconomy; how to redesign food environments to encourage more healthy eating habits; the balance between extensification and intensification in contributing to more sustainable food production; how to implement true cost accounting to reflect fully the role of externalities and environmental impacts; and improving resilience.

DIVERSIFICATION OF POLICY INSTRUMENTS

Agricultural policy research has been influenced not only by the expanding scope of topics to be addressed but also by the introduction of new policy instruments that have raised new issues in terms of assessing their effectiveness as well as their interactions with other policy goals. For reasons of space we choose to highlight two examples here: direct payments and agri-environment-climate measures.

Direct payments

Direct payments were introduced into the CAP from 1994 onwards, first as coupled payments and then, after 2005, as decoupled payments. Given the important contribution they make to farm income, they have attracted much research: how equally are they distributed; do they have production effects; are they capitalised into land values; do they impact on productivity growth; how do they influence the process of farm structural change?

The concern with how direct payments are distributed arises from the well-known statistic that 80% of payments accrue to the largest 20% of farms, which in turn is driven by the allocation mechanism of direct payments which is related to land. Distributional analyses have used either the annual Commission data on payments by size of payment or micro-level farm data from the Farm Accountancy Data Network (FADN). The most recent analysis using Commission data shows a trend towards a more equitable distribution of aid in the older member states, but the opposite trend for the newer member states (Alfaro-Navarro et al. 2021). Farm-level analysis has been used to investigate the dependence of farm incomes on direct payments by investigating scenarios that assume the complete abolition of the CAP (Ciaian et al. 2020). By linking a farm-level model with the CAPRI partial equilibrium model they overcome the limitations of a purely static analysis. They conclude that a small sub-set of farms (pigs, poultry, dairy and horticulture) could experience an increase in income due to improvements in both prices and yields but those farms that are currently most dependent on CAP subsidies (arable and cattle farms) would experience significant income losses. Another farm-level analysis concluded

that the 2013 CAP reform only partially succeeded in its objective to equalise payments across farms, but also showed that CAP subsidies (and direct payments in particular) contribute to a reduction in the inequality of total farm income (Espinosa et al. 2020). Severini and Tantari (2015) reached the same conclusion using Italian farm level data.

It is no surprise that coupled direct payments stimulate production (Smit et al. 2017; Jansson et al. 2020), but views have differed on the importance of the production effects of decoupled payments (Moro and Sckokai 2013). This is a vital parameter when modelling the impact of changes to CAP instruments (Balkhausen, Banse, and Grethe 2008; Boulanger, Boysen-Urban, and Philippidis 2021). Truly decoupled payments do not affect the marginal incentive to produce but economists have pointed to various mechanisms whereby such payments might affect production compared to the absence of such payments. Payments that are decoupled in a static and riskless world may not be production neutral in a dynamic and risky world. Studies have therefore tried to assess directly whether direct payments have kept land and labour in production that might otherwise have exited the sector, or influenced investment through wealth effects or by increasing access to credit where imperfect credit markets exist. A drawback of this literature is that empirical work has often been constrained to comparing decoupled payments with the previous system of partially-coupled payments rather than being able to undertake a test of the impact of these payments compared to the absence of these payments.

For payments to be fully decoupled they must be fully capitalised into land values. Another way to estimate the 'degree of decoupling' is therefore to examine the extent to which these payments are capitalised into land values and land rents. A high rate of capitalisation into land values implies a low transfer efficiency of support to farmers (if we exclude the benefits they receive as owners of land), and thus a lower likelihood that the payments will distort production. Economic theory can describe the degree to which support is capitalised into land rents as a function of three parameters: i) how the policy is implemented, specifically its initial incidence (targeted to land, inputs or labour); ii) the ease which land can be shifted to alternative uses (its elasticity of supply); and iii) the ease with which land can be substituted with other factors of production (its elasticity of substitution) (Floyd 1965). However, specific features of the CAP payments implementation mechanism seem to play a dominant role.

Varacca et al. (2021) undertake a meta-analysis of the capitalisation of CAP payments into land prices. In line with expectations, they find that the introduction of decoupled payments increased the capitalisation rate, although the extent of this effect hinges on the implementation scheme adopted by a member state. In particular, the rate of capitalisation is influenced by the relationship between the number of eligible hectares and the number of payment entitlements in those member states that adopted the Single Farm Payment. Other factors can also reduce the rate of capitalisation, including the time-limited commitment to payments, the costliness of cross-compliance conditions, rural land market imperfections, and differences in the value of entitlements (Ciaian, Kancs, and Swinnen 2008). Allowing for multiple estimates from individual papers, the range of estimates for the capitalisation rate is strikingly large. The Varacca et al. (2021) study concludes that the capitalisation rate for coupled payments is around 11 cents per euro of payment. Decoupled payments have a higher capitalisation rate, depending on the implementation model, while capitalisation in rental transactions is higher still, varying between 15 and 49 cents per euro. Guastella et al. (2021) find that between 28 and 52 cents per euro of additional subsidy capitalise into land prices in member states that adopted the hybrid and the regional model, respectively, but find no evidence of capitalisation in farmland prices in member states that adopted the historical model.

The corollary of these findings is that the residual payment increases the returns to the remaining production inputs, including intermediate inputs, capital and labour, and will likely influence production through these routes. Biagini, Antonioli, and Severini (2020) throw further light on this issue by directly estimating the income transfer efficiency of CAP payments in Italy. Italy made all land uses (except forests) eligible for entitlements, generating an abundance of eligible hectares compared to entitlements. Studies show that as a result the capitalisation of direct payments into land values was negligible. An income transfer efficiency of unity would indicate the payments do not affect production decisions. They find that the income transfer efficiency of most CAP measures is less than unity, pointing to the existence of leakages. Their paper highlights that policy participation costs differ across farms and across instruments and also play a role in determining transfer efficiency.

A recurring theme has been the investigation of the impact of CAP subsidies on productivity growth (Minviel and Latruffe 2017; Garrone et al. 2019). In theory, the direction of this effect could go either way. Positive effects might arise if direct payments provide farmers with the necessary financial means to keep technologies

up to date or to invest in efficiency-improving on-farm organisation. Negative effects might arise if farmers are less motivated to perform well with more income due to subsidies or where a soft budget constraint means that farmers over-invest leading to inefficient use of resources. Early literature that focused on the impact of coupled payments found a predominantly negative relationship. More recent studies suggest that decoupled payments may have a positive effect on technical efficiency, although this may vary across different farming systems (Bonfiglio et al. 2020).

Another issue that agricultural policy research has investigated has been the impact of direct payments on the pace of structural change in agriculture. Direct payments can, in principle, influence the entry, growth and exit of farms. If direct payments are capitalised into land values and land rents, increased land rents and prices may represent significant barriers to entry into the agricultural sector and may also impede restructuring within the sector. Direct payments may also influence a producer's decision to exit the industry, particularly for low-profit farmers, given that receipt of the payment is contingent on having access to land. There is evidence at least for the EU-15 member states that the change to a decoupled payments regime after 2005 may have slowed the rate of farm consolidation in the EU (Brady et al. 2009; Kazukauskas et al. 2013). There is also evidence from survey intentions and simulation modelling (Bartolini and Viaggi 2013; Brady et al. 2009) that decoupled payments slow down the rate of structural change relative to a situation of no agricultural policy support. The CAP's income support payments have created incentives for some farmers not to exit agriculture, reduced land reallocation towards more efficient farms, and helped to keep less efficient farms active. If new entrants or enlarging farms are seen as more productive, this mechanism may mitigate any production-stimulating effect of these payments through other channels.

Environmental interventions

The second policy instrument that has generated a significant volume of research is the voluntary agri-environment-climate measure (AECM) in the CAP. It is distinguished from the income support instruments by its focus on environmental outcomes, its voluntarism, its contractual nature, and its reliance on an objective mechanism to establish payment levels. This has given rise to a vast literature focusing on the ecological effectiveness of these measures, the factors that influence farmer participation, the most efficient ways of designing contracts, their impact on other CAP objectives such as farm income and employment, and their cost effectiveness (Uthes and Matzdorf 2013).

An obvious question is whether the agricultural practices supported by AECM payments have delivered the desired environmental effects (ecological efficiency). Such studies are usually undertaken by ecologists rather than economists. Although AECMs are often seen as the poster boy of the CAP and the type of payment for public goods to which the CAP as a whole should aspire, the literature on ecological effectiveness is surprisingly critical (ECA 2011). This may partly reflect the findings of the highly influential seminal review of AECM effectiveness by Kleijn and Sutherland (2003) which is still frequently cited despite the experiences with AECMs since then. However, a more recent meta-analysis concluded that the expectation that results of previous evaluations would be used to improve future policy was not borne out in practice (Batáry et al. 2015). These authors found that schemes implemented after revision of the EU's agri-environmental programs in 2007 were not more effective than schemes implemented before revision. For the 2014-2020 period, it seems many managing authorities continued with the interventions used in the previous programming period even where the Rural Development Programmes state that the AECM measures have been improved (ENRD 2016). Still, evaluation studies suffer from methodological weaknesses that make it difficult to draw strong conclusions (Josefsson et al. 2020). AECMs often have multiple goals such as the protection of environmentally valuable landscapes, reduction of pollution, enhancement of biodiversity, and climate mitigation that makes outcomes difficult to quantify. Furthermore, few studies examine whether farmers maintain their conservation practices over time, or the extent of rigour of these practices.

A large literature has explored the factors affecting adoption of AECMs by farmers. Farmers receive financial support to participate but uptake is patchy and there is evidence of systematic non-participation in schemes. Understanding the factors that influence farmer participation in AECMs can help to design schemes that better incentivise farmers to participate. There is a widespread view that, at least in some countries, it can be difficult to attract farmer participation and thus there is a low uptake of AECMs but firm evidence on this is hard to obtain. Numerous analyses indicate that the main factor encouraging farmers to participate in AECMs is financial incentives rather than environmental concerns (Pavlis et al. 2016; Wąs et al. 2021), although Dessart, Barreiro-Hurlé, and van Bavel (2019) highlight the importance of behavioural factors. Brown et al. (2021) argue that over-emphasising economic considerations may hamper

the effectiveness of environmental payments, potentially corroding farmer attitudes to policy and environmental objectives.

Adoption studies initially focused on factors such as farm structure (intensive vs extensive) or farmers' socio-demographic characteristics (education, age). More recent work has investigated the influence of behavioural factors such as farmers' motivations and attitudes, the role of social capital and farmer's networks, as well as the role played in diffusion by whether one's neighbours have adopted the practices. Most papers focus on individual schemes and specific countries. A review paper by Lastra-Bravo et al. (2015) surveyed ten papers that used a probit/logit model to examine the determinants of adoption. Over 160 variables affecting uptake were identified, and grouped into five major categories: economic factors, farm structure, farmer characteristics, farmers' attitudes towards AECMs, and social capital (i.e. the connections, shared values and understandings between individuals and groups). Results indicate that farms less likely to join an AECM are those where there is a high dependence on agricultural activities for farm income, those where there is the presence of a successor on a farm, and farms with a high proportion of family labour. In one of the few studies that take an EU-wide perspective based on FADN data, Zimmermann and Britz (2016) show that participation in AECMs is more likely in less intensive production systems where, however, per committed hectare premiums tend to be lower.

Another line of research addresses the contractual design of AECMs, starting from the dominant action-based approach that requires participants to demonstrate compliance with specific management actions (prescriptions) to potentially more cost-effective contract designs, such as payments by results, auctions, spatial targeting, and collective implementation (Berkhout, van Doorn, and Schrijver 2018). The popularity of action-based approaches can be explained by lower transactions and monitoring costs as well as less risk for farmers. However, these approaches may have contributed to the disappointing results of AECMs to date given that they often encourage enrolment of less intensively farmed areas at lower risk of environmental losses, encourage farmers to choose those actions that require the least change to their management practices, and do little to promote long-term attitudinal change or commitment to improving environmental outcomes. As one paper noted: 'Thus far, no consensus exists whether [AECMs] incentivize adoption of pro-environmental production or simply offer windfall profits for those already operating at lower intensities' (Uehleke, Petrick, and Hüttel 2019).

Results-based schemes (RBS) in which farmers are paid for achieving agreed environmental outcomes rather than performing specific management actions are advocated on the grounds that they give farmers greater flexibility in the way they achieve environmental outcomes which may be more in line with their own farm characteristics, can encourage innovation in successful practices, and by giving farmers a greater sense of ownership of the outcomes they may be more successful in promoting behavioural change (Burton and Schwarz 2013; Chaplin, Mills, and Chiswell 2021). Despite these apparent advantages, RBS have largely remained as pilot and small-scale initiatives. Partly it can be difficult to define indicators for the desired ecological outcomes, partly RBS imply greater risk for farmers, while administrations worry about higher transactions costs (Šumrada et al. 2021). Research is seeking to address these issues, for example, by looking at the potential for hybrid schemes using a mixture of action- and results-based approaches, and by exploring the use of self-assessment by farmers to reduce monitoring costs (Herzon et al. 2018).

Many policy problems in the design of AECMs can be understood within the framework of principal-agent theory. The issue is to design a policy that results in agents (farmers) doing what is in their best interests while also achieving the objectives of the principal (the state). Designing such a policy faces problems of asymmetric information resulting in adverse selection (arising from the availability of information known to the agent but not to the principal, such as the opportunity costs of farmers in providing the environmental outcome) and moral hazard (because it is difficult for the principal to monitor compliance, the agent has an incentive to cheat). Adverse selection means that farmers with the lowest compliance costs (perhaps because they are already managing their land in an environmentally-friendly way) have the greatest incentive to join a scheme, resulting in comparatively limited environmental gains and overcompensation of compliance costs (Latacz-Lohmann and Schilizzi 2005). Different contract designs have been proposed to overcome these problems, including the use of targeting mechanisms, incentive-compatible screening mechanisms, and auctions (Vergamini, White, and Viaggi 2015). Collective implementation can also be important to widen the adoption of AECMs and to lower transactions costs. Olivieri et al. (2021) provide a systematic review of relevant papers to understand better how these innovative contract solutions can improve the effectiveness of AECMs under asymmetric information and help to avoid policy failures relative to action-based approaches.

AN EXPANDED TOOLBOX

Agricultural policy research relies on a large and sophisticated toolbox of methods and databases comprising statistical and experimental approaches, various farm-level, agent-based as well as sector models, and a dedicated collection of microeconomic data in the form of the farm accountancy data network (FADN) as well as census, survey, and administrative data (Finger and El Benni 2021). Developments in data collection and access, models and new methodologies have been an important driver of the policy research agenda.

Availability of data

Agricultural policy research has a strong empirical focus and relies heavily on the availability of accurate and reliable data. Agricultural and other statistics collected by national statistical agencies and coordinated by Eurostat have been and remain a primary source of data, supplemented by administrative data, and survey data collected by researchers themselves. Recent developments in data availability, accessibility and diffusion have helped to drive the expanding agenda of agricultural policy research by opening new areas of enquiry and permitting the use of new methodologies. Nonetheless, both Eurostat and the Commission recognise that the absence of data in many new policy areas is likely to be a constraint for future policy analysis.

The European agricultural statistics system (EASS) maintained by Eurostat consists of 10 legal acts and their implementing measures, as well as of a number of gentlemen's agreements. Eurostat embarked in 2016 on a strategy for agricultural statistics for 2020 and beyond with multiple objectives to clarify and streamline definitions, diversify data sources and improve the speed, flexibility and effectiveness of the EASS while preserving high quality data and long time series. It recognised new data needs linked to the greening of the CAP, climate change challenges, production structures, food supply chains, price volatility, yields and geo-referenced information (Eurostat 2016).

Agricultural policy research has greatly benefited from the farm-level micro data collected through the Commission's Farm Accountancy Data Network (FADN) intended to provide reliable information on farm incomes in the EU (Vrolijk et al. 2004). Many of the papers cited in this review made use of FADN data for income comparisons and distribution analysis, efficiency studies, environmental assessments, microsimulation modelling, and policy impact analysis. The Farm to Fork Strategy proposes to extend the current FADN to a Farm Sustainability Data Network (FSDN) to include a broader set of indicators on the sustainability performance of farms. Given resource constraints, this may require a trade-off between the size of the representative sample and the breath of coverage of data collected (Vrolijk and Poppe 2021).

The administration of the CAP requires the collection of a huge amount of data through the Integrated Administration and Control System (IACS) that centralises data on agricultural subsidies paid by the EU in each member state. Data collected under the CAP's Common Monitoring and Evaluation Framework (soon to become the Performance Monitoring and Evaluation Framework) also includes administrative data supplied by member states as well as Eurostat data (European Commission 2018c). Researchers' access to these data seems to vary across member states although the Commission has invested heavily in developing data platforms such as the Agri-Food Data Portal.[2] The attempt by the Commission to increase transparency around the distribution of CAP payments by requiring member states to publish information on the names of beneficiaries, the municipality and the postal code where available on nationally-managed websites with a search tool, first introduced in 2009, has generated very limited research (one exception is Scown, Brady, and Nicholas 2020). This may be because member states have not made much effort to make these sites user-friendly and considerable effort is required to turn these data into usable information. The European Data Strategy proposed by the Commission includes rules on open data and the reuse of public sector information that will hopefully improve researchers' future access to administrative datasets.

The ongoing digital revolution is greatly increasing the amount of data collected regarding both farms and consumer behaviour. In addition to the traditional public sector actors involved in collecting and aggregating agricultural data, the digital revolution engages additional actors such as agricultural equipment manufacturers, software developers and other private actors. Managing rights to agricultural data and privacy concerns relating to the use of both personal and non-personal data is emerging as a key regulatory challenge (Kosier 2019). The voluntary Code of Conduct for agricultural data sharing launched by a coalition of associations from the EU agri-food chain in 2018 represents an important first step in building the necessary trust and transparency (van der Burg, Wiseman, and Krkeljas 2020). The development of a common agriculture data

[2] The portal can be accessed at https://agridata.ec.europa.eu/extensions/DataPortal/home.html.

space will be facilitated by Commission initiatives as part of its European Data Strategy.

The role of modelling

Agricultural economists have put significant effort into the development of policy models which are increasingly used in impact assessment and to support policymaking. Policy models come in many forms – programming models, agent-based models, microsimulation models, partial equilibrium models and computable general equilibrium models – and increasingly include links to biophysical, land use and other models in order to evaluate impacts on a wider range of indicators than the narrowly economic ones of production, prices, income, trade and economic welfare. As the focus of policy has shifted from markets to farms, models have evolved to capture the heterogeneity of farm responses, for example, to changes in direct payments (Espinosa et al. 2020; Gocht et al. 2013). In the past, models were often developed for specific purposes and rarely re-used, encouraged by a pattern of research funding that prioritised novelty rather than the maintenance and development of existing models. Two developments at European level have improved this situation.

One is that the EU research programme has begun to fund a cluster of research projects that aim to improve modelling capabilities while also interacting with each other.[3] The other is the creation of a modelling platform (the integrated Modelling Platform for Agro-economic Commodity and Policy Analysis, iMAP) at the Commission's Joint Research Centre since 2005 that includes selected partial and general equilibrium models (M'barek and Delincé 2015). iMAP facilitates the analysis of a given policy question with different tools, allowing comparison of results to substantiate the findings as well as extending the range of outputs given that the different models complement each other. The impact assessment undertaken for the Commission's legislative proposal for the CAP post 2020 illustrates the contribution of the iMAP models (European Commission 2018b). iMAP also contributes to making model results and harmonised data sources publicly available, thus increasing transparency and facilitating their scientific review.

Future directions for agricultural policy modelling were identified as part of the SUPREMA project (Gonzalez-Martinez, Jongeneel, and Salamon 2021). In line with the narrative in the earlier part of this paper, the conclusions noted the increasingly wide range of issues and outcomes that policies sought to address. In particular, more effort is needed to integrate environmental and social aspects as well as economic outcomes. As no model can attempt to provide all the answers, the project emphasised the need to ensure that models can be coupled and work together which adds another layer of complexity to their design. Models will increasingly be designed in a modular fashion so that depending on the question being asked discrete components can be included or not as needed. Resources also need to be found to support the ongoing work of model maintenance and development as well as to undertake model comparisons.

Experimental methods and behavioural insights

Experimental approaches are a relatively recent but rapidly-growing addition to the methodological toolbox both for agricultural policy design and impact evaluation. Insights from behavioural economics are also increasingly applied to understanding how farmers respond both to stronger regulations and to the broader range of voluntary measures now offered as part of agricultural policy. Although they are quite distinct (experimental economics is a methodological approach while behavioural economics is a research programme informed by a richer set of assumptions about human behaviour than mainstream economics) they are often seen as complementary as experiments can be used to test predictions of human behaviour drawn from behavioural economics (Thoyer and Préget 2019).

Experiments are particularly useful in trying to establish cause-effect relationships because they seek to control all extraneous factors in order to isolate the impact of the 'treatment' (the policy intervention or different designs of the intervention). Colen et al. (2016) survey the contributions of experimental approaches to agricultural policy, relatively limited at that time, and discuss the main challenges of integrating these approaches into the toolbox for agricultural policy impact assessment and evaluation. Lefebvre et al. (2021) give examples of policy insights from experiments and also review the challenges in making better use of experimental approaches. A network of experimentalists, the Research network on Economic Experiments for the CAP (REECAP) has been established with the aim of promoting the increased recourse to economic experiments for CAP evaluation.

Behavioural economics explores the implications of observing how farmers and consumers actually make decisions rather than assuming that they are rational,

[3] These include SUPREMA: https://cordis.europa.eu/project/id/773499; AGRICORE: https://cordis.europa.eu/project/id/816078); BESTMAP: https://cordis.europa.eu/project/id/817501; MIND STEP: https://cordis.europa.eu/project/id/817566.

self-interested, utility-maximising individuals. Psychology and other social sciences help to rationalise deviations in behaviour from the standard model and underpin the notion that there are systematic biases that if accounted for in designing policies can help to improve policy outcomes. Much of this literature has focused on ways to improve participation in agri-environment schemes due to their voluntary nature (Dessart, Barreiro-Hurlé, and van Bavel 2019). The EU created in 2019 the Competence Centre on Behavioural Insights within the Commission's Joint Research Centre to promote the use of behavioural insights in policymaking and the use of behavioural research is foreseen in the Better Regulation guidelines for evidence-based policymaking (Baggio et al. 2021). As behavioural change among both consumers and farmers is central to achieving the objectives of the European Green Deal when it comes to food systems, the extent and relevance of this research is only going to increase in future.

CONCLUSIONS

This review of recent agricultural policy research has highlighted its expanding breadth and the growing use of innovative datasets and methodologies. Yet it is far from comprehensive, and some readers will regret the omission of specific mention of topics such as the bioeconomy, risk management, or political economy. We have highlighted the close relationship between research efforts and topics with the changing needs and priorities of practical agricultural policy. We have used the concept of layering to suggest that new policy needs and priorities have been added cumulatively to the agricultural policy research programme rather than deleting or substituting for previous themes. It is impressive to observe how responsive the discipline has been to the changing needs and demands of policymakers and stakeholders.

In looking to the future, it seems appropriate to highlight two themes. The growing breadth of policy research brings with it a growing need for interdisciplinary collaboration. Erjavec and Lovec (2017) have already observed that the shift in focus of CAP research from market distortions to broader societal issues such as food, environment and development requires greater collaboration with political and other social sciences to avoid policy failures. I would argue that the expanded research programme described in this paper points to the need for an even greater range of disciplinary collaborators including ecologists, climate scientists, nutritionists, food technologists, and other natural scientists. My impression, which requires further empirical testing, is that many of the most cited papers that are driving the broader food systems and food policy agenda are not published in the traditional agricultural economics journals and often do not include economists among their authors (Fresco et al. 2021). In the past, agricultural economists often had a training in basic agricultural science which facilitated their contribution to, for example, farm management research. Being able to communicate across disciplinary boundaries will become an increasingly important skill. The downside, of course, is that investment in developing such skills takes time and resources that could otherwise be used to build research competences and output within one's own discipline. The ready access to information and the accompanying problem of information overload may, paradoxically, have the effect of encouraging greater specialisation where researchers can feel confident that, at least in their own specific areas, they have a full and complete understanding of the state of play.

A second question that comes naturally to an agricultural policy researcher is whether their research has any actual impact on practical agricultural policy. Researchers will be aware that research funding applications increasingly require evidence of impact or policy relevance. The commitment to the Better Regulation agenda within the EU and many national administrations includes a requirement for impact assessments (IAs) to gather and evaluate evidence to support policymaking. Reidsma et al. (2018) examine the use of scientific evidence in IAs in the area 'Agriculture and rural development' undertaken by the Commission between 2003 and 2014. Examining the total of 24 IAs conducted during this period, they concluded that this policy area 'provided relatively much scientific background compared to other policy areas' based on the inclusion of references to scientific studies. Both the European Parliament and the European Court of Auditors regularly publish studies which draw on research outputs in support of their policy recommendations.

However, actual impact is difficult to evaluate. While the above evidence suggests that policy research is referenced when taking decisions, it is often far from determining policy outcomes. The simple linear model whereby knowledge drives policy and that policymaking is driven by 'evidence' produced by science has been heavily criticised by the literature in political science, policy studies, and public administration (Boswell and Smith 2017). Most studies show that the use of evidence is highly selective. Some commentators attribute this to weaknesses in research communication and call for improved methods of knowledge exchange (e.g., policy briefs) as well as greater interaction (e.g. through stakeholder workshops) with poli-

cymakers to build trust. Increasingly, we see such initiatives as part of H2020 projects while the European Association of Agricultural Economics and the UK Agricultural Economics Society have jointly published *Eurochoices* with the specific aim of better communicating research results to policymakers. One might also make the case that agricultural policy research, even if not immediately visible in changes to CAP policy instruments, for example, has nonetheless had an influence over a longer timespan in shifting the range of what are deemed to be relevant responses to specific policy problems.

This instrumentalist view of the role of research in policymaking is challenged by other conceptual framings, most strongly the notion that it is politics that determines the research that is undertaken, or at least determines the research that is considered relevant, rather than the other way round. The way in which research funded by commercial interests often results in research findings that are of direct use to those interests is well documented. Similar mechanisms can be at play in policy research if research funders signal what is likely to be funded (or not) and what the expected outcomes are likely to be. In other cases, the research process itself is not informed by politics but the use made of research findings (or not) may ultimately be decided through a political process. Researchers need to be careful in criticising this outcome as research findings are not value-neutral. Implementing new policies or policy reforms will likely have distributional impacts by affecting various interests differently and may also challenge underlying values. While researchers can play an important role in highlighting the way power relations can affect the outcomes of political decision-making, it is ultimately the role of policymakers to weigh up and evaluate the trade-offs and make the final decision.

In conclusion, it is interesting to compare the narrative in this paper with one I wrote 25 years previously assessing the policy interests of agricultural economists at that time based on contributions to the 1996 Congress of the European Association of Agricultural Economists (Matthews 1997). It is striking how many of the themes mentioned in that paper are also highlighted here. The concluding paper to that Congress by Claus-Hennig Hanf was entitled "Agricultural economics in Europe: a thriving science for a shrinking sector?" (Hanf 1997). Hanf poses the question how agricultural economics can maintain its relevance as a discipline (or quasi-discipline, to use the term suggested by Fresco et al. (2021) when they pose a similar question) when the economic size of its focus of enquiry diminishes in importance.

Hanf was writing at a time when in his own country and elsewhere there was great pressure to close and amalgamate university departments of agricultural economics. He noted that the profession had maintained its numerical strength partly because the CAP gave rise to an almost inexhaustible supply of research projects, but also because agricultural economists enlarged their research domain to tackle new research problems. That these continue to be successful survival strategies is supported by the narrative in this paper. However, he also identified several pitfalls, including a potential loss of identity, a tendency to apply a narrow toolbox of theories and methods based on a strict neoclassical paradigm, and the dangers of losing the familiarity with the natural and technical environment in these newer research fields that has been the hallmark of agricultural economists in the past.

With these strictures in mind, it seems reasonable to suggest that agricultural policy research can maintain its relevance to practical agricultural policy if it continues to take up issues of societal concern, maintains its independence, encourages methodological innovation and supports a variety of methodological approaches, collaborates closely with other disciplines, while building on its long tradition of empirical analysis and working with data.

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