The relationship between climate change and agriculture is a contentious, complex and important one. In this series of twelve blogs, UCD Adjunct Professor Frank Convery will explore the context, challenges and potential solutions for dairy, beef and sheep farming in Ireland. Each blog presents key evidence to underpin informed debate and the series seeks to help plot a sustainable future for the sector.

Responses are invited via earth.institute@ucd.ie and the UCD Earth Institute will host a workshop in association with the UCD School of Agriculture and Food Science and the National Economic and Social Council at the end of the series to discuss the evidence and its implications.

Professor Tasman Crowe, Director, UCD Earth Institute

9. Climate Performance by Irish Ruminant Farming: Some Essentials for Success

Frank Convery, Adjunct Professor, University College Dublin

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"Ireland will become a **world leader** in Sustainable Food Systems (SFS) over the next decade. This will deliver significant benefits…and will also provide the basis for the future competitive advantage of the sector".

Food Vision 2030[1]

"I should like the enemy to think that it is easy for him in every direction to retreat"

Xenophon, Greek military leader philosopher and historian

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Some Key Points

This blog is the first of four addressed to climate policy for Irish ruminant farming. A gap in the debate around this is understanding of the menu of policy instruments available to drive emissions reduction and carbon removal at scale, by what criteria they can be judged, and what lessons can we learn from their application elsewhere.

In this blog, I identify a menu of 13 policy instruments available: [market based (tax/levy, emissions trading); subsidies (cash transfers, tax expenditure); >efficiency; information; infrastructure; innovation; regulation; voluntary agreements; zoning/spatial; reverse auctions, green purchasing]. I show how some of these have been applied in a number of disparate policy areas (European Union Emissions Trading Scheme; excise duties on transport fuels; modern Irish economic policy; plastic bags levy; European Innovation Projects; Energy Efficiency in Buildings (retrofit), and suggest four criteria - outcomes, value for money, fairness, relax critical constraints – by which they could be judged. A preliminary conclusion is that there could be a case for widening and deepening the policy mix applied to climate policy for farming.

Introduction

Food Vision 2030 identified 4 missions, of which the first is "A climate-smart Environmentally Sustainable Agri-Food Sector." To deliver this mission, it identifies goal 1 as: "Climate Neutral Agri-Food System so that by 2050, the Climate Impact of Methane is Reduced to Zero and Remaining Agricultural Emissions are Balanced by Removals; and Improve Air Quality" and then specifies 10 Actions[2] to deliver this goal.[3] What is missing is granular treatment of the mix of policy instruments that, if well designed and implemented, could deliver these actions, and the criteria to apply in deciding which instrument mix to apply

This and the following 3 blogs are devoted to this issue. In this blog, I explore how to judge which policy instruments to apply, and what climate policy instruments are or could be available and how they work, using a few case studies to illustrate. In the remaining 3 blogs, I focus on the specifics as regards climate policy instruments for Irish ruminant farming. The big bazooka in climate agricultural policy in Ireland is the Common Agricultural Policy (CAP): In Blog (10) – CAP 2023-2027 – I address the policy instrument mix on the table and assess its adequacy. In Blog 11 (Innovation) – in which I explore the specifics of what a mission-focussed innovation strategy should look like, and the priorities it should address. In the final Blog 12 (Policy Integration) I make the case for a step change in how policy is designed and delivered if Ireland is deliver on its ambitions to be a world leader by 2030.

The Criteria

The challenge is easy to state: Every ton of CO2 and N2O we emit into the atmosphere contributes to reducing the life chances of our grand-children, and this shrinkage of their choices and opportunities will last for over 100 years; every ton of methane we emit adds to the costs which climate change imposes on the poorest today. The art of climate policy in all sectors is to make it as easy as possible for us to reduce emissions and increase carbon removal. There are four key criteria by which to judge effectiveness; outcomes (emissions reductions and carbon removals); value for money; fairness; addressing critical constraints.

Policy Change is Hard

In decision making, most of us give more weight to losses than to equivalent gains[4] which means that the anger and sense of aggrievement of those who perceive that they have lost are generally much more intensively felt and expressed than the feelings of gratitude and satisfaction of those who win. Uncertainly compounds the difficulty. [5] Change often means given up something certain, in exchange for future gains that could be large, but are uncertain. And trade-offs are a further complication – gains in one area are partially offset by losses in others. These challenges are compounded when losers are very influential – which can be a product of some combination of their numbers (a key factor in democracies), important economic actors - generators of jobs, income profits and taxes - which can mean being 'in the room' when decisions are being made[6] – and the skill persistence and ruthlessness with which they make their case. Public acceptability is always a key factor; how to engender it, how to keep it, and 'fairness' is often relevant. Another consideration is that every policy system has limited capacity in terms of what it can achieve within a given time span. There is always a huge gap between what it could do, and what it can do, which means there is always intense competition to first get an issue onto the policy agenda, and then to get action. Finally, luck matters: external circumstances can be hugely enabling, or the converse, and political leadership is essential.

We can see these considerations at play when it comes to developing and implementing climate change policy.

In 'Evidence' below, I look back at examples of policy in action as a way of gleaning insights as to what works and conclude with an Assessment of what an effective climate policy for Irish farming should look like.

Evidence

What does good policy look like?

I start out summarising a few features of two EU-wide policies that, compared to what would have happened in their absence (the counter factual), have reduced greenhouse emissions at scale, and then discuss a four Irish cases from which we can learn.

European Cases

1. **Excise Duties on road transport fuels in Europe**

Transport fuel taxes in Europe were imposed after the Second World War in part to manage fuel scarcity, and to raise revenues, but had the collateral benefits of reducing fossil fuel consumption and therefore greenhouse gas emissions (levels of excise duties now imposed are typically on the order of equivalent to over €250 per ton of CO2). Sterner is the main documenter of this case.[7] He concludes that: "Had Europe not followed a policy of high fuel taxation but had low US taxes, then fuel demand would have been twice as large.". The emissions of the billions of tons of CO2 avoided by this policy over the past 70+ years is a huge dividend today for us and our posterity.

2. **The European Union Emissions Trading Scheme (EU ETS)**

The EU announced in 1992 that it would introduce a carbon tax. I was on the edge of this process, being the co-ordinator of the EU's research networks for market-based instruments. The tax proposal failed – a product both of visceral and unrelenting opposition from heavy industry, and the fact that fiscal measures required unanimous support from member states, and this was not forthcoming. The proposal was withdrawn in 1997, and a decision was made to replace it with an emissions trading scheme.

Emissions trading in its simplest form involves: setting a cap on total emissions which shrinks over time; allocating allowances to the polluters in the form of tons of emissions per year such that the sum of these allocations (their individual quotas) does not exceed the cap; allowing those who reduce their emissions below their quota to sell some or all of their surplus to others who are exceeding their quota.

What became EU ETS drew its inspiration from the successful application of emissions trading in the US to reduce at scale and low-cost sulphur dioxide emissions ('acid rain') from power plants, an achievement which was assessed independently by a team at MIT; [8] Denny Ellerman led that study, and we convinced him 10 years later to lead an assessment of EU ETS;[9] the text below draws heavily from this latter work. The Commission was determined not to embark on another failure and this was helped by the following: Emissions trading was not a fiscal measure, and so it could be approved by a 'qualified majority' of member states; key elements of business liked it because of its flexibility, because (with free allocation of allowances) there would be no cash flow costs, and especially because it was not the hated carbon tax; some environmental NGOs liked it because (unlike the tax) the shrinking cap guaranteed that whatever emissions reduction was agreed would definitely be achieved; some member states liked the concept to the extent that the UK and Denmark decided to design and deliver their own national ETS, and the Netherlands and Sweden were leaning in this direction.

These latter developments created a huge impetus for an EU-wide scheme. Commissioners Monti (Competition) and Bolkestein (Internal Market) became enthusiastic and effective supporters of EU ETS. It started operating with the following features (rationale in brackets): Free allocation of allowances (guaranteed support from industry); in phases, so that the targets (caps) could be revised and dysfunctionalities addressed; obligatory, covered all power units >20 MW, and large heavy industry plants (steel, cement, refineries, organic chemicals, fertilizers, paper etc. - they were already being regulated, and setting a size threshold reduced the transaction costs); effective monitoring reporting and verification and automatic penalties for installations in non-compliance; integration of additional sectors – e.g. intra-EU air transport.

After the pilot phase (2003-2005) it was clear that there was over-allocation of allowances, and the latter responsibility was transferred from member states to the Commission. After the economic crash (2009-2014) allowance prices fell sharply, a consequence of both shrinking economic activity and incomes and the large number of offsets coming into the system from third countries. As a consequence of the latter, from

2015, the linkage provision - which allowed emissions reductions in countries outside the EU to be used for compliance creation would no longer be allowed – specifically the EU - will 'no longer be a source of demand for (international) credits as long as the current legislation is not modified'. Later, the Market Stability Reserve was introduced. Between 2005 and 2017, emissions covered by EU ETS fell by 26 per cent.[10] Policies were also implemented in parallel that helped drive reductions; it was recognized that an essential key to reducing emissions at scale was to find new and better ways to reduce emissions at acceptable costs, and renewables was an obvious focus, which benefitted from very generous subsidies.[11]

Irish Cases

3. **Modern Irish Economic Policy**

In 1773, James Boswell convinced Samuel Johnson to accompany him on a tour of Scotland's Hebrides and western isles. Observing the widespread poverty and mass emigration, Johnson remarked: "That state from which all escape as soon as they can, and to which none return after they have left it, must be less happy". (Boswell's *Tour of the Hebrides*)

Ireland was 'less happy' in 1958, when its population was 2.82 million, which is 55% of today's population of 5.1 million. It was what today would be called a failed economic state; shrinking GDP, and huge numbers escaping as soon as they could - an annual emigration rate in the 1950s (45,000) that was 75% of the birth rate.

At its heart, this economic failure was a product of policy failure. We were wedded to an economic policy of self-sufficiency, tariff barriers, discouragement of competition and ambivalent about inward investment and inward flow of talent and enterprise.[12]

O'Rourke observed that our average annual growth over the 1950-1960 period lagged way behind that of Greece, Spain and Portugal, and this continued into the 1960s, a product in part of the fact that these three reversed their trade protectionist policies, and Ireland did not.[13]

We had very low and stagnant levels of productivity, innovation, incomes, employment, and levels of formal education. For most, emigration was the only path to any prospect of a reasonable income, a vibrant social and family life and access to second and third level education for their children.

We turned this around with the following policy changes: we reduced and then eliminated many tariff barriers; made it as easy as possible for both inward and indigenous investment to find a profitable home in Ireland; invested heavily in education, so that the growing skill base and associated self-confidence that are essential if investment is to be sustained and to grow were to hand. In 1973, we joined what became the European Union with access to its huge market, and the Single Market further reduced barriers to talent, trade, markets, and enterprise. The EU also helped fund key physical and intellectual infrastructure and gave us a seat in the room where big decisions happen. We have persisted with this policy for over 50 years.

There was opposition to this change. In part this was ideological, and in part because bad policies always engender powerful and persistent adherents – in this case including the many businesses and their employees who could not compete internationally, and whose future was therefore threatened by change.

4. **The Plastics Bag Levy[14]**

In 2002 Ireland introduced a €0.15 Euro levy on plastic shopping bags, previously provided free of charge to customers at points of sale. The effect of the levy on the use of plastic bags in retail outlets was dramatic—a reduction of use in the order of 90%, and an associated gain in the form of reduced littering and negative landscape effects. Costs of administration have been very low, amounting to about 3% of revenues, because it was possible to integrate reporting and collection into existing Value Added Tax reporting systems. The response from the public and the retail industry has been overwhelmingly positive. Central to this achievement was: universal and obligatory application; clear political leadership ('It's going to happen, but I am open to persuasion on the 'how'); [15] detailed consultation with key stakeholders; the universal availability of a very low cost 'permanent' bags in stores, recycling of the revenues to fund waste infrastructure and environmental research, and adaptation of the policy over time, including increasing the levy rate.

5. **European Innovation Projects (EIPs)**

These projects are funded via Pillar 2 (Rural Development) of the Common Agriculture Policy (CAP) In an assessment of EIPs over the 2014-2020 period the authors observe (p. 5) [16] "One of the biggest and potentially most significant developments in Ireland's

agricultural policy landscape in recent years has been the way the EIP-Agri has been rolled out. Choosing to deliver programmes to benefit the hen harrier and freshwater pearl mussel using a tendering mechanism under the EIP banner was itself innovative, but widening the net to fund local projects, developed locally – 21 of them so far - set a whole range of new challenges for civil servants, civil society and the desk officers in Brussels."

These projects have many interesting features, but four strike me as especially important: they pay for performance, there is a lot of learning by doing, they draw on the expertise and ambition of participants in both the design and delivery of outcomes, and they are area based.

6. **Energy-Efficiency Retrofit of Buildings**

I focus on climate policy for residential buildings in part because it resembles farming in at least two respects. First there are a lot of them – about 2 million dwellings, of which at least 0.5 million need energy retrofitting. This number compares with ~93,000 farmers earning >€8000 annually from farming. Secondly, it is very expensive to measure emissions directly; in the case of residential dwellings, instead of doing this, performance bands A through G, called Building Energy Ratings (BER) based on estimated kWh/M^2/Year, are used.

Residential buildings in Ireland generate about 7 million tons of CO2e annually, comprising 12.3% of total emissions, while agriculture (excluding leaks) accounts for over three times this amount comprising 37% of the total (See Table 3 of Blog 1).

The core elements of Ireland's climate policy for residential buildings are summarized below. There is a rich policy instrument mix (6 in all, 3 of which are mandatory), a dedicated organization to deliver policy, a dedicated budget (funded by the carbon tax) and there are many co-benefits:

A. ***Policy Instrument Mix*** (6)

1. *Information*: standardized, independently verified Building Energy Ratings (Mandatory)
2. *Subsidies (carrot)* to get the attention of polluters (Opt-In)
3. *Payment for performance* – the subsidy is not paid until an independent assessor verifies that a step change in reductions (measured in kg CO2 emissions/M^2/Yr.) that are is likely to be delivered. (Opt-in)
4. *Carbon tax (Stick)* that incentivises action – every householder pays this (Mandatory)
5. *Innovation* – external wrap option to reduce energy use and emissions is a recent addition to the choice set (Opt-in)
6. *Regulations (stick)*: there are mandatory very demanding standards for new dwellings, and a ban on oil and natural gas boilers from 2022 and 2025 respectively (Mandatory)

B. ***Dedicated Organization to deliver policy*** that is fit for purpose - Sustainable Energy Authority of Ireland (SEAI)[17] with the singular mission of advancing energy efficiency at scale.
C. ***Dedicated budget*** at a scale sufficient to drive ambition at scale - the SEAI budget for 2021 was €350 million, addressed mainly to reducing greenhouse gas emissions from heating in residences,[18] and a budget envelope over the period 2021-2030 of €5 billion is provided for.[19]
D. ***Co-benefits*** *(Carrot)* in terms of more comfort, lower bills, capital appreciation, the latter enhanced for those houses that achieve a B3 or better standard.[20]

Personal Anecdote: In 2021 we decided to invest in 'external wrap' insulation of our home in Blackrock, County Dublin. The Building Energy Rating (BER) is a mandatory scheme which is required for property sale and after any energy refurbishment. I realize that we are very fortunate in being able to find the resources to co-fund this investment.

After the investment, the estimated energy efficiency (BER rating) of the house approximately doubled, with use estimated to fall from 300 kWh/M^2/year (E1) to 159.20 kWh/M^2/year (C1) and we get an Energy Performance Certificate. We also know the new CO2 emissions factor – it is 34.39 kg CO2/M^2/Year

The following carrots and sticks were relevant to our decision.

Table 1. Carrots and Sticks engendering emissions reduction action in Convery Household, Blackrock, County Dublin in 2021.

Carrots (benefits)	Comment

Subsidy	The costs were ~€17,000, about a quarter of which was covered by grant
Increased comfort	An immediate and very tangible benefit for residents and visitors in the October-May period
Lower bills (tax saving)	We pay for natural gas, which includes a carbon tax of €33.5 per ton of CO2. The last time I looked, the tax added about 12% to the bill
Capital Gain	I have not seen any recent evidence, but I expect that the value of the house when it is sold will reflect the investment, i.e., the sale price will probably be higher by at least €13,000 more than it would have been absent the refurb.
Psychic value	It is a good feeling to know that (by cutting emissions from our heating in half) we have done our bit to reduce the climate costs imposed on our children and grand children
Sticks (Costs)	
Investment	We had to spend ~$14,000
Carbon Tax	This is the mirror image of 'lower bills' above
Household disruption	The project took longer than promised and caused considerable disruption.
Regret	
AIB offering lower cost mortgages to buyers of buildings with B3 or better rating	Our post energy efficiency rating (C1) failed to make this cut.

We do not yet know if this policy mix will deliver the outcome needed, and there are ways in which this policy needs to be improved, including reducing costs by further innovation and capturing economies of scale and scope where many dwellings in the same neighbourhood invest in the same time window,[21] but it has many of the key elements needed to drive performance.

Climate Policy Instruments Menu[22]

The above cases give you a flavour of some of the policy instrument that can be employed to reduce greenhouse gas emissions. Below (Table 2), I provide a more complete list of instruments – thirteen in all – together with some characteristics – and some sense of the extent to which they are relevant for the five case studies

Table 2 Policy Instruments and Some Performance Factors, Five Case Studies

Policy Instrument	**1. Excise Duties on Transport Fuel**	**2. EU ETS**	**3. Plastic Bags Levy**	**4. European Innovation Projects**	**5. Energy Efficiency building Retrofit**
Market-based					
1. Tax/Levy	Y	N – see EU Carbon Price Tracker | Ember ember-climate.org for price trend	Y	N	Y (carbon tax)
2. Emissions trading	N	Y	N	N	N
Subsidies					

3. Cash transfers	Y (new zero carbon vehicles) public transport	N	Y (revenues ring-fenced to fund env research)	Y (CAP Pillar 2)	Y (retrofit grants)
4. Tax Expenditure	Y ('green diesel')	N	N	N	N
5. > Efficiency (more output per unit of input)	Y (more fuel eff. Vehicles emit <emissions)	Y (less inputs/unit output usually < emissions)	N	Y	Y (more efficient boilers less emissions)
6. Information	Y (carbon eff. Labelling of vehicles)	Allowance price signals that GHG storage scarce	Y (Levy signals that plastic bags impose costs	Y (outcomes)	Y (Ratings A through G)
7. Infrastructure	Y (bus and cycle lanes)		Y (revenues ring-fenced to fund waste infrastructure)	N	N
8. Innovation	N	Y (Some Rev from allowance auction ring- fenced for Innov. Fund)	Y (revenues ring-fenced to fund some innovation)	Y (Institutional innovation – group engagement)	N
9. Regulation	Y EU CO2 emission standards for new cars and vans	N	N	N	N (but does apply to new buildings) and future ban on gas fired central heating)
10. Voluntary Agreements	N	N	N	Y (Opt in)	Y (Opt in)
11. Zoning	Y banning of fossil fuel vehicles in some cities. congestion charging in others	N	N	Y de facto grouping by geography – Burren etc.	N
12. Reverse Auctions	N	N	N	N	N
13. Green Purchasing	N	N	N	N	Y (preferential loan terms to borrowers for low energy rated houses)
Some Characteristics					
1. Co-benefits	Y (air pollution↓)	Y (air pollution↓)	N	Y Biodiversity	Y (property value↑, air pollution↓)

2. Obligatory Participation	Y (applies to everyone who drives)	Y (applies to all installations that are 'covered'	Y (applies to all purchasers of groceries)	N (participation is voluntary)	N (participation is voluntary)
3. Pay for Performance/Penalize non performance	Y (the more fossil fuel you burn, the more you pay)	Y (have to buy allowance for every ton emitted above quota amount)	Y	Y	Y (ratings improvement)
4. Complementary Instruments	Y IRL [annual road tax, Vehicle Registration Tax (VRT)]	Y (Innovation – see above - and subsidies for renewables)	Y (see above – information, infrastructure, innovation)	Y (see above – information, innovation, zoning)	Y (information subsidy, tax)
5. Climate Justice	Y Subsidy of public transport	Y (allocation favours low-income Member states)	N	?	Y public Investment in low income housing
Institutional Arrangements					
6. Dedicated Budget	N	N	N	?	Y (€5 billion ring- fenced)
7. Dedicated Organization	N	Y	N	?	Y (SEAI)

Assessment

Michael Smith was a farmer and an Irish politician from Tipperary, who served as Minister for the Environment from 1992-1994. After his appointment, he asked me to come and meet him to discuss environmental policy. My recall is that I prepared a 10-page document in which I identified about 15 priorities, why they were important, and what needed to happen. When we met, I ran through my list. He listened patiently, and then said: "Frank, these are great ideas. I can do one of them. Which one would you prioritize?" I was speechless, failed to prioritize, and missed my opportunity. But I did learn a lesson: time and capacity of any policy system are very scarce and precious resources. Unless you prioritize, nothing happens; you are wasting your own time and that of others. Prioritization means first accepting that there is a serious challenge that needs to be addressed, and then deciding what to prioritize in terms of outcomes, and finally design and implement policies that deliver these.

Accepting the challenge

Kenneth Galbraith observed that: "Faced with the choice of changing one's mind and proving that there is no need to do so, almost everyone gets busy on the proof."[23]

As regards integrating climate policy in Irish agriculture many of have tended to first distract ourselves from accepting the reality of the challenge and prove that there is no need to do so; previous blogs have documented the evidence. However, many in the sector have now moved to the second stage, namely prioritization.

The following are the main priorities to consider when assessing how to meet the climate challenge:

1. **Achieve Climate Outcomes at Scale** – the volume of greenhouse gas emissions reduced, and carbon dioxide removed.

2. **Deliver Value for Money (Cost-Effectiveness)** – the cheaper it is to reduce emissions, the more you can reduce for a given amount of expenditure. This also matters hugely to individuals, families, farmers, companies, and governments for whom resources are always scarce, and there are always hugely pressing competing demands.

Comment: In the case of agriculture, see Tables 2 and 3 of Blog 2 (Metrics) which provide Teagasc's first cut at estimating both the volumes of emissions reduced or carbon stored, and the cost per ton. Although we have this evidence, it hardly features in discussion and advocacy by either farm groups or environmental organizations. I notice that farm organizations in fact often prioritize 'digestion of slurry and grass for the production of gas which is processed further to methane which is injected into the natural gas grid'. This is ranked by Teagasc as the most expensive of the 27 options they list, costing €280 per ton of CO2e reduced, and expected to reduce emissions by 150,000 tons. I have seen no focus by environmental organizations on costs. Similarly, while I assume that the Departments of Finance and Public Expenditure are paying attention, I see nothing from them in the public domain thereon.

3. **Provide Fairness** - this has at least two dimensions. Are those who are most responsible for the problem doing most to address it? Secondly, are those who have the most capacity to do so being asked to do most? The starting point should be the polluter pays principle – those who emit most should pay most.

Comment: Mary Robinson quotes Constance Okollet**,** a small-scale farmer and community organizer:[24] "In eastern Uganda, there are no seasons anymore. Agriculture is a gamble… This is outside our experience…" Climate change is already destroying the lives of those who have done nothing to cause it. There is nothing noble about poverty; as the song says: 'You ain't poor if you're poor by choice.' A coherent evidence-based discussion about the who, what, where, when, and how much of climate justice in Ireland is just beginning, led by the National Economic and Social Council (NESC) which has established an Agriculture and Climate Action Working Group to help develop its recommendations.

4. **Relax the Critical Constraints:** The payoff to effort will be magnified if policy finds ways to remove the constraints that are most inhibiting effective action.

Comment: Justus von Liebig (in the 1840s) revolutionized food production with the following insight: "By the deficiency or absence of one necessary constituent, all others being present, the soil is rendered barren for all those crops to the life of which that one constituent is indispensable". Climate policy must first find the 'indispensable constituent' that will reduce emissions and store carbon at scale, and then provide it. You can't have a successful climate policy for Irish farming and leave ~60% of emissions (enteric methane) on the table. Blog 11 (Innovation) is all about that. You can't have a successful carbon removal policy and stop planting trees. Blog 12 (Policy Integration) addresses that.

5. **Achieve Multiple Benefits:** in addition to reducing emissions and storing carbon, climate policy can also deliver other benefits. Blogs 3 (EU), 4 (UK) and 5 (US) show how important it can be commercially, in terms of delivering a carbon footprint per Kg of product that will be good enough to compete successfully with local producers in these 3 markets, that in 2021 accounted for almost 70% of export sales. But there are also public goods produced or destroyed by farming, including nature conservation, air pollution (ammonia) and water pollution (excess N and P).

Comment: The first step is to understand these multiple impacts and their trade-offs and then find ways that work to deliver the appropriate mix. The best farm-related practitioners of this in Ireland are to be found in the (agri) European Innovation Projects.

Designing and Delivering Policies

When considering serious choices, a useful starting point is to be clear about the objectives the values and operating principles that will relevant, then identify the menu of ways ('instruments') in which they could be achieved, both separately and in some combination.

Every organization of any scale must divide its endeavours into relatively self-contained 'boxes' which have a clear mission and leadership, and which put together and manage the expertise best suited to deliver these. However, it is essential that these units engage with a 'positive sum' mentality with other units within the organization, and be porous to influence and surprises from outside the organization.

In this blog, my main idea is to help with the last of these. I devote most of the 'evidence' space to showing how policies have been designed and delivered to achieve outcomes in fields removed from farming forestry and land use change, with a particular focus on the many policy instruments that are 'on the table' to do so, namely those that are: market

based (tax/levy, emissions trading) subsidies (cash transfers, tax expenditure), >efficiency, information, infrastructure, innovation, regulation, voluntary agreements, zoning, reverse auctions. A tentative conclusion/hypothesis is that this (wider) menu of instruments could find productive application in the delivery of climate policy for Irish farming and deliver emissions reductions and store carbon at scale The specifics are addressed in Blogs 10 (CAP 2023-2027), 11 (Innovation), 12 (Policy Integration).

Header image credit: Photo by Sam Carter on Unsplash.

« Climate Policy For Ruminant Agriculture In Ireland blog series

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Biography

Frank Convery has degrees [B. Ag and M.Ag (Forestry)] from UCD. Encouraged by the late Seamus Sheehy, he went to the US and took a PhD in Forestry Economics (State University of New York). After a distinguished academic career in the US (Duke University) he returned to Ireland as research professor at ESRI before being appointed as Heritage Trust Professor of Environmental Studies at UCD where he led the successful application for the funding of the UCD Earth Institute. He chaired the boards of the Sustainable Energy Authority of Ireland (SEAI) (2002-2007), Comhar Sustainable Development Council (2006-2010) and served on the Climate Change Committee (2016-2020) chaired by John FitzGerald, and the AgriFood 2030 Committee chaired by Tom Arnold. The latter produced *Food Vision 2030*. From 2014 to 2018, he was chief economist with the Environmental Defense Fund, New York. His passion is finding ways to bring the weight of learning down to where things are done; his ambition for the sector is the same as Food Vision 2030's: "Ireland will become a **world leader** in Sustainable Food Systems (SFS) over the next decade. This will deliver significant benefits…and will also provide the basis for the future competitive advantage of the sector".

Footnotes and references

[1] gov.ie - Food Vision 2030 – A World Leader in Sustainable Food Systems (www.gov.ie) p.9

[2] ACTION 1 Immediately implement the 'Ag Climatise' Roadmap; ACTION 2 Produce detailed plans by Q2 2022 to manage the sustainable environmental footprint of the dairy and the beef sectors; ACTION 3 Update Ag Climatise, as required, to ensure consistency with new targets agreed nationally and internationally for the agri-food sector. ACTION 4 Roll out 'Carbon Farming'; ACTION 5 Ireland will play a leading role in shaping how greenhouse gas emissions from livestock farming are understood and addressed; ACTION 6 Research and promote the concept of 'Regenerative Agriculture', particularly under Irish conditions; ACTION 7 Scale up renewable energy (RE) sources, especially anaerobic digestion, biorefining and biomass supply, and solar PV; focus on energy efficiency; and examine potential barriers to the roll-out of RE at farm level, including necessary support for microgeneration and access to the grid.: ACTION 8 The food and beverage industry will continue to drive down GHG emissions and develop zero waste approaches; ACTION 9 Prepare for climate change through implementing the actions contained in the statutory Agriculture, Forest and Seafood Climate Change Sectoral Adaptation Plan; ACTION 10 Carry out a risk analysis to assess the impact of climate change on Irish food production and food safety

[3] gov.ie - Food Vision 2030 – A World Leader in Sustainable Food Systems (www.gov.ie) pp.57-61.

[4] i.e., if you refuse a choice with an equal probably of winning €10,000 or losing €10,000, you are risk averse; if the choice is winning €10,000 or losing €2,000 you might reconsider....This notion is a strand of prospect theory, for which Daniel Kahneman in 2002 got the Nobel Memorial Prize in Economics

[5] For a wider view as to what behavioural economics has to offer, see: Lades Leonhard, 2022. Nudges and Other Behavioural Public Policy Instruments to Encourage Environmentally Friendly Behaviour

[6] The importance of this is brilliantly illustrated in the musical *Hamilton*, when Vice President Burr laments that he was not in the room where it happens when Hamilton secured support from Madison and Jefferson for a federal banking system in exchange for locating the new capital in the South. Hamilton - Room Where it Happens - YouTube

[7] Sterner, Thomas, 2007. "Fuel taxes: An important instrument for climate policy", *Energy Policy* 35 3194–3202

[8] Ellerman, Denny, Richard Schmalensee, Elizabeth M. Bailey, Paul L. Joskow and Juan-Pablo Montero,2000. *Markets for Clean Air. The U.S. Acid Rain Program*, Cambridge University Press, pp. 362

[9] See Ellerman, Denny, Frank Convery and Christian de Perthuis, 2010. *Pricing Carbon: the European Union Emissions Trading Scheme,* Cambridge University Press 367 pp.

[10] See Meadows, Damien, Peter Vis and Peter Zapfel, 'Chapter 4 – the EU Emissions Trading System' in Delbeke, Jos and Peter Vis, 2019. Editors *Towards a Climate-Neutral Europe*, Routledge, pp.66-94

[11] In 2012, market subsidies for wind (€11 billion), solar (€15 billion) and biomass (€8 billion) totalled €34 billion ECOFYS 2014 Subsidies and costs of EU energy_11_Nov.pdf (europa.eu)

[12] This made sense in the 1930s because everyone else was doing it, and self-sufficiency was imposed during the Second World War; the failure was the slowness with which policy adapted to post War conditions

[13] 'Ireland's not so Golden age, pp.134-149 in O'Rourke, Kevin, 2018. *A Short History of Brexit*, Pelican Books

[14] Details from: Convery, Frank, Simon McDonnell and Susana Ferreira. 2007. "The most popular tax in Europe? Lessons from the Irish plastic bags levy", *Environmental and Resource Economics*, (2007) 38 pp. 1–11

[15] Noel Dempsey was the Minister responsible for leadership on this

[16] Jones, Gwyn, James Moran and Mark Robin, 2019. European Innovation Partnerships - Agriculture (EIP-AGRI) in Ireland 2014- 20 -lessons and recommendations for policy post-2020. EIPreport2019final.pdf

[17] Declaration of interest. I chaired the SEAI board from 2002-2007

[18] Emissions from this source in 2019 were about 7 million tons of CO2e, which is about one third of total emissions from the farming sector. EPA, 2020. *Ireland's Provisional Greenhouse Gas Emissions 1990-2019*, Figure 5, p. 9

[19] In Irish Government (2021) (p. 35) we read that over the period 2021 – 2030 the planned carbon tax increases may allow for €9.5 billion in additional revenue of which €5 billion will be devoted to household retrofit

[20] You will have noticed that AIB is offering A concessionary rate to borrowers who are buying properties that meet this standard. This will eventually be reflected in higher prices for such dwellings.

[21] Some of this happens naturally: we were influenced when we observed, and learned from, 'early movers' in our neighbourhood who were already investing.

[22] See: Sterner, Thomas, and Jessica Coria, 2012. *Policy Instruments and Natural Resource Management*, RFF Press, Routledge, pp. 638 for a detailed assessment.

[23] 'How Keynes came to America' in *Economics, Peace and Laughter*

[24] Robinson, Mary, 2018: *Climate Justice – hope, resilience and the fight for a sustainable future*, Bloomsbury.