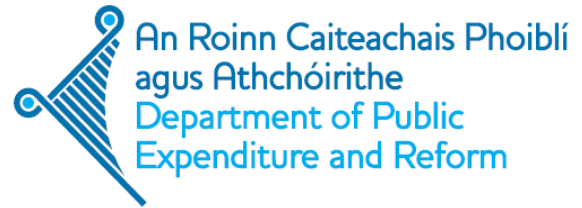




Irish Government Economic & Evaluation Service



Spending Review 2017

Targeted Agricultural Modernisation Schemes II

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This paper has been prepared by IGEES staff in the Department of Public Expenditure & Reform in the context of the Spending Review 2017. The views presented in this paper do not represent the official views of the Minister for Public Expenditure and Reform or the Department of Agriculture, Food and the Marine.



Key Messages

Table in summary:

- Although at an early stage, TAMS II expenditure is significantly below its budgetary allocation. Due to a number of factors, there is uncertainty surrounding the level of funding that the scheme requires and the periods in which expenditure will occur. These factors include the demand led nature of the scheme, the sequencing of approvals and payments and the drawdown rates of applicants which may be impacted by issues such as commodity prices and overall investment and finance levels.
- Based on the approval pattern that has emerged at this early stage of the scheme, it is mostly young farmers, larger farms, milk farms, and farms in the South-East who have benefited from the scheme as of 18 September 2017. The approval pattern is the result of the following factors;
 - Young farmers receive a higher capital investment aid rate to encourage generational renewal and the adoption of the most up-to-date technology;
 - Dairy equipment is prioritised under TAMS II to allow for planned dairy expansion post-2015 quota abolition, in line with Food Harvest and Food Wise strategies for the sector;
 - Larger farms are more likely to be approved into the system given the approval system i.e. additional points awarded on a per hectare basis;
 - The prevalence of farms in the South-East reflects the structure of the agricultural sector in Ireland, particularly a higher proportion of tillage and dairy farms in this region.
- Given the interlinkages with the Rural Development Programme, evaluation of TAMS II, or other schemes, in isolation is methodologically challenging. The basis for a specific evaluation of TAMS II through the Teagasc National Farm Survey has been established by the DAFM. This is a welcome development and this paper highlights a number of areas for further consideration in terms of the overall approach to evaluation.

1. Introduction

The Targeted Agricultural Modernisation Schemes (TAMS) are a grouping of capital grant schemes designed to incentivise private investment in physical farming assets as part of the Rural Development Programme (RDP) 2014-2020. Investments are carried out under measure four, "investments in physical assets", of the RDP with the objective of improving the economic and environmental performance of agricultural holdings. TAMS II succeeds other Department of Agriculture, Food and the Marine schemes (TAMS I, the Farm Waste Management Scheme and the Farm Improvement Scheme). Stimulating capital investment and prioritising sectors and beneficiaries for support is intended to contribute to the development of agriculture in Ireland and to address a number of themes, including; enabling growth and competitiveness; environmental impact and climate change mitigation; supporting increased efficiency of holdings; and improved animal health and welfare. The aim of this paper is to set out an analytical overview of TAMS. The paper highlights the purpose and objectives of the schemes and its scope focuses on detailing the level and composition of expenditure and grant approvals in the context of the objectives of the programme and the wider agricultural sector.

1.1 TAMS II Overview

TAMS II was initiated in 2015 as part of Ireland's Rural Development Programme and covers 93% of grant aid for capital investment provided in the RDP. Thus far, TAMS II has undergone eight three-month rolling tranches; it has received around 13,500 applications, around 11,000 of which have been approved. The total allocated budget for TAMS II is €395 million under the 2014-2020 RDP. TAMS II is partially funded by the European Union, under the European Agricultural Fund for Rural Development (EAFRD) fund, at a contribution rate of 53%. The preparatory analysis undertaken in advance of the Rural Development Programme 2014-2020 identified a number of key agricultural sectors for capital investment. The main sector targeted for support is the cattle sector and in particular the dairy sector, through the Animal Welfare Scheme and Dairy Equipment Scheme. The organic sector was also identified for support, as growth in this sector is expected to bring about wider environmental benefits. Other sectors identified include the pig and poultry, sheep, goats and tillage sectors. In addition, the preparatory analysis identified the high up front cost of the necessary capital investment as one of a number of barriers to young farmers entering the agricultural sector.

1.2 Policy Context

1.2.1 European Policy

TAMS is situated within the RDP, itself a component of the EU Common Agricultural Policy (Figure 1.1). The CAP is the EU budget's largest component, currently accounting for just under 40% of spending¹. It is a common set of objectives, principles and rules, through which the EU co-ordinates economic support for European agriculture. CAP provides for direct payments and market measures (the so-called Pillar I) and for

¹ https://ec.europa.eu/agriculture/sites/agriculture/files/cap-funding/pdf/cap-spending-09-2015_en.pdf

the Rural Development Programme (the so-called Pillar II). At EU level, Pillar II is significantly smaller, accounting for about 24.4% of the total CAP budget.

1.2.2 National Policy

Ireland's Rural Development Programme for the 2014-2020 programme period includes nineteen individual schemes. The RDP and its schemes (including TAMS II) make up the Irish section of the second pillar of the Common Agricultural Policy. The policy and administrative basis for the Rural Development Programmes are laid out in the EU Regulations 1305/2013 (EAFRD regulation), 1303/2013 (common provisions regulation for all European Structural and Investments Funds) and 1306/2013 (horizontal regulation on the financial management rules for the two CAP funds).

Figure 1.1 – Policy Context of TAMS II

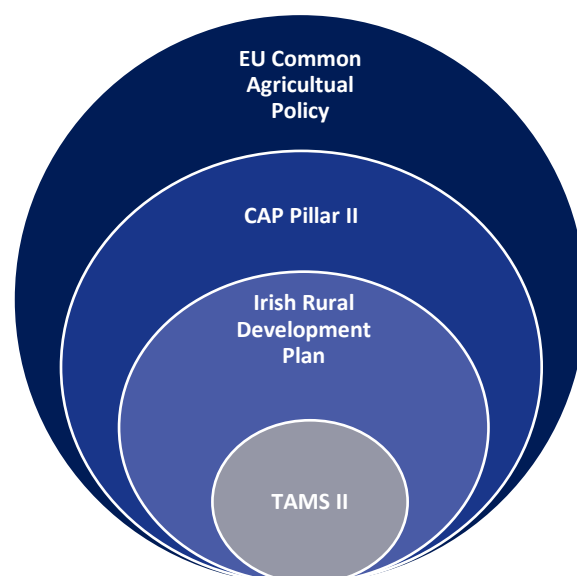
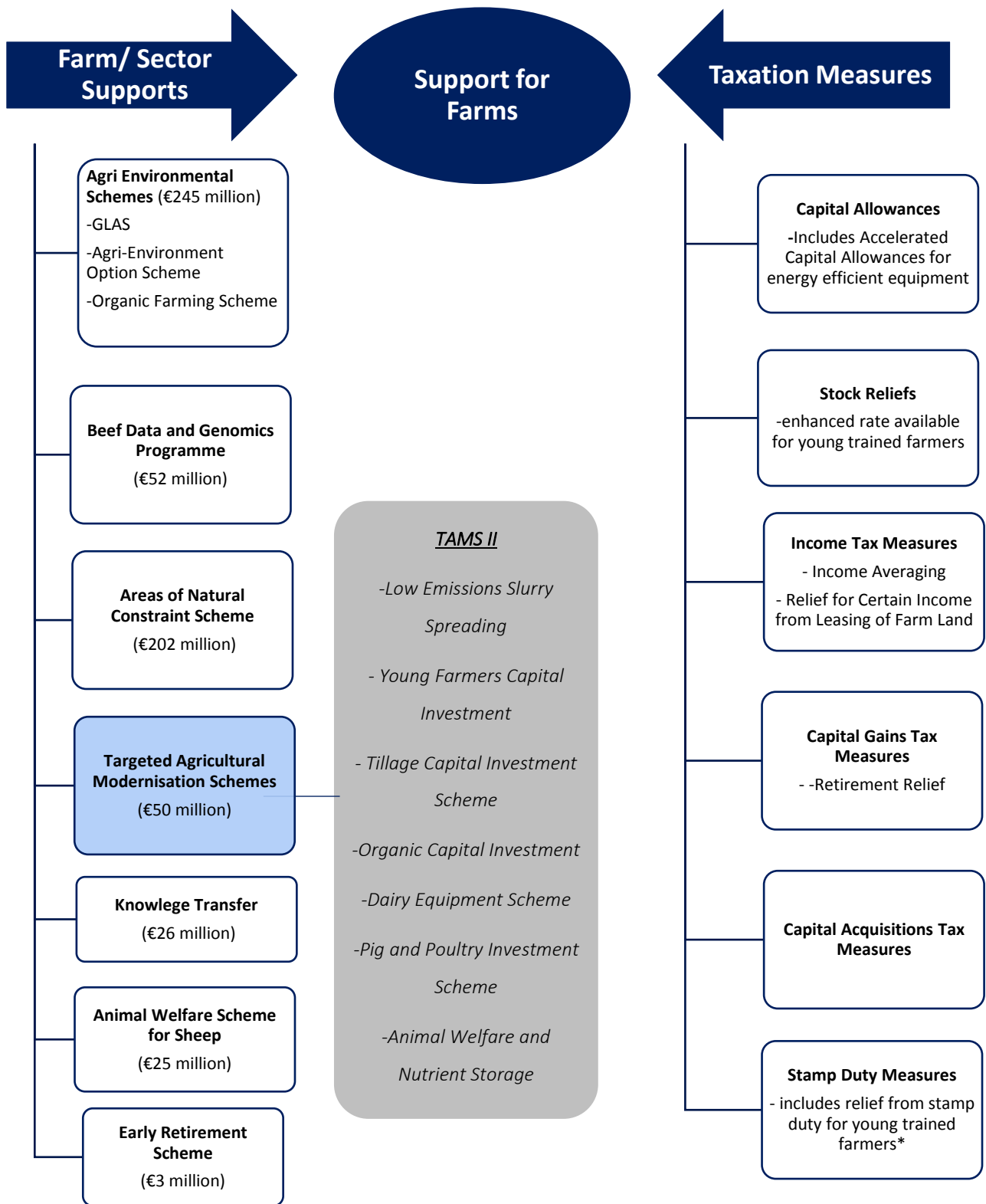


Figure 1.2 places TAMS II in the national policy context by providing an overview of the main supports that are available to farms in 2017 and the funding allocated to these schemes. Figure 1.2 is not a comprehensive list of all schemes available to farms, the purpose is to provide an overview of the schemes funded by the Exchequer and therefore does not include the Pillar I schemes of the CAP which are funded by the EU. In addition to the expenditure based schemes available, Irish farms also benefit from a number of taxation measures that are targeted at the agriculture sector. These taxation measures amount to revenue foregone and therefore represent a cost to the Exchequer. Based on the most recent published data from the Agri-Taxation Review 2014² (data from 2011) the most costly of these measures are the Capital Allowances³, with an annual cost to the Exchequer of €192 million. Capital Allowances are available for the construction of farm buildings (excluding dwelling houses), fences, holding yards, drains, land reclamation, and other ancillary works. Capital Allowances provide relief against income tax over a seven year period for capital expenditure. In Budget 2017, a provision for Accelerated Capital Allowances for energy efficient equipment was extended to sole traders and non- corporates. These Accelerated Capital Allowances allow for the write-off of the full cost of acquiring qualifying energy-efficient equipment for tax purposes in the year of purchase. Capital Allowances are particularly relevant in the context of this review of TAMS II as they also aim to support on farm capital investment.

² D/Finance and DAFM (2014), 'Agritaxation Review October 2014'

³ Some of the allowances are not agriculture specific and are available to all businesses and some activities may not be farm-related.

Figure 1.2- Overview of Support Measures for Farms- Pillar II Expenditure and Taxation, 2017



Source: REV 2017 & DAFM's Schemes and Services 2014- 2020. Note: expenditure figures refer to 2017 allocation. *Young Trained Farmers refer to those under the age of 35, and must have attained one of the necessary qualifications, amongst other criteria which vary across different schemes (Agritaxation Review, 2014).

1.2.3 Objectives

The Rural Development Programme maps out the methods and areas of government intervention in Agriculture. As part of RDP planning, managing authorities conduct SWOT analyses (Strengths, Weaknesses, Opportunities, Threats) on their national agricultural environment and define the specific areas and means of intervention. There is considerable scope for autonomy in policy design, however the overarching goals must be in line with the broad objectives outlined in EU Regulation No 1305/2013, Article 4.

Article 4

Objectives

Within the overall framework of the CAP, support for rural development, including for activities in the food and non-food sector and in forestry, shall contribute to achieving the following objectives;

- (a) fostering the competitiveness of agriculture;
- (b) ensuring the sustainable management of natural resources, and climate action;
- (c) achieving a balanced territorial development of rural economies and communities including the creation and maintenance of employment.

These broad objectives express the goals identified at the European level, which should be pursued by Member State RDPs intended to qualify for assistance funding under the second pillar of CAP. In the Rural Development Programme, these three key objectives are developed into six priorities, and eighteen Focus Areas (Appendix Figure i). Focus areas represent high level goals which are to be addressed through the RDP. The Focus Areas identified may be implemented via 20 measures and 67 sub-measures. TAMS II is funded under measure four – investments in physical assets of the Rural Development Programme 2014-2020.

Applications to TAMS II are assessed and approved using a point based system, and in this way funding is targeted at key demographics. As such, the process targets applicants of certain characteristics and demographics related to the scheme's objectives. Reviewing these targeted characteristics one can note the link to the objectives embedded in the scheme. Across all schemes farmers under the age of forty are awarded extra points; this means the objective of supporting young farmers is present throughout TAMS II, rather than just a feature of the *Young Farmer Capital Investment Scheme*. This is in line with overall Scheme objectives and is intended to ensure that support is directed towards farmers under forty who may not qualify under the provisions of the YFCIS. Five of the schemes are weighted in favour of applicants who have not been in receipt of funding from other specified schemes – three of which are contained within TAMS I. There is, therefore, a focus on equitability of grant aid distribution present in the scoring process. Due to the nature of different farming systems, there are eligibility constraints over the farm size. Five of the schemes require a holding of five hectares or above. The *Tillage Capital Investment Scheme* requires a minimum of fifteen hectares while the *Organic Capital Investment Scheme* requires only one hectare. There is also a concomitant points

advantage for each hectare in an applicant's holding over a given threshold. For example in the TCIS applicants are awarded an additional half mark for each hectare over 15ha. This may be borne of a logistical consideration for ensuring a return on investment, however this also has the effect of targeting larger farms to a greater extent. While it should be noted that the minimum size requirements are well below the average farm size in the relevant sectors⁴, the application process is relatively advantageous to larger farms. Potential reasons for this farm size preference are not discussed in the accompanying literature, in terms of overall objectives.

1.3 TAMS II - Schemes

TAMS II capital investment support is a multi-purpose measure to help the farming sector respond to old and new challenges, notably improving competitiveness of Irish farms in a global market and reducing environmental impact, e.g. by introducing lower emission technology. Therefore, the TAMS II scheme, under measure four of the RDP, is most relevant to address the EU common rural development priorities 2, 3, 4 and 5 shown below.

- Priority 2: "Enhancing farm viability and competitiveness of all types of agriculture in all regions and promoting innovative farm technologies and the sustainable management of forests", and
- Priority 3: "Promoting food chain organisation, including processing and marketing of agricultural products, animal welfare and risk management in agriculture", and
- Priority 4: "Restoring, preserving and enhancing ecosystems related to agriculture and forestry", and
- Priority 5: "Promoting resource efficiency and supporting the shift towards a low carbon and climate resilient economy in agriculture, food and forestry sectors".

The rural development priorities are broken down further into 18 focus areas (FAs) - see appendix (i). For the seven TAMS II schemes, the relevant focus areas are shown in table 1.1. Each TAMS II scheme can be programmed under multiple focus areas i.e. funding is attributed to the focus area primarily targeted by the investment (primary objective). Depending on the TAMS II scheme and the individual investment item, it is reasonable to expect an additional impact on the other focus areas, which is the secondary objective. Table 1.1 illustrates the cross-cutting primary and secondary objectives of the TAMS II schemes.

⁴ Teagasc National Farm Survey: Preliminary Results 2016

Table 1.1: Primary and Secondary Objectives of TAMS II Schemes by Focus Area

Focus Area	Scheme						
	AWSNSS	YFCIS	DES	TCIS	PPIS	LESS	OCIS
2A - Competitiveness	P	S	P	P			S
2B - Generational Renewal		P					S
3B – Risk Prevention	P	S					P
4B – Nutrient Loss	P	S		P			S
5B – Energy Efficiency		S		P	P		S
5D – Emissions		S				P	S

Note: Light Grey P: Primary Objective. Dark Grey S: Secondary Objective

Further detail on the individual investment items and their relevant focus area are set out below. The seven TAMS II schemes, and their indicative financial allocations under the RDP are outlined in table 1.2 below. EU contribution, via the EAFRD, is also shown.

Table 1.2: Financial Allocation of TAMS II Schemes

TAMS II Scheme	Expenditure	Irish Contribution (47%)	EAFRD Contribution (53%)
Animal Welfare, Safety and Nutrient Storage Scheme	€170m	€79.9m	€90.1m
Young Farmers Capital Investment Scheme	€114m	€53.6m	€60.4m
Dairy Equipment Scheme	€50m	€23.5m	€26.5m
Tillage Capital Investment Scheme	€26m	€12.2m	€13.8m
Pig and Poultry Investment Scheme	€17m	€8.0m	€9.0m
Low Emission Slurry Spreading	€10m	€4.7m	€5.3m
Organic Capital Investment Scheme	€8m	€3.8m	€4.2m
Total	€395m	€185.6m	€209.4m

Source: DAFM

i. Animal Welfare, Safety and Nutrient Storage Scheme (AWSNSS)

The Animal Welfare, Safety and Nutrient Storage Scheme (AWSNSS) within TAMS II is a grouping of investment items relating to animal housing and welfare, farm nutrient storage, animal handling, and farm safety. The objective of this scheme depends on the category under consideration. Also, some individual items will contribute towards other objectives (secondary effects). For example, animal handling investment items would also be expected to contribute towards farm safety.

Table 1.3: Objectives by AWSNSS Category

TAMS II AWSNSS category	Focus Area	Objective	Examples of investment items
Animal Housing and Welfare	2A	To improve economic performance and facilitate farm restructuring and modernisation	Animal housing buildings, roofing of livestock feed yards, calving pens
Animal Handling	3B	To support farm risk prevention and management	Mobile /fixed handling units, leg hoist lift, calf dehorning crate
Farm Nutrient Storage	4B	To improve water management including fertiliser and pesticide management	Manure pit, mass/precast concrete tanks, circular slurry stores
Farm Safety	3B	To support farm risk prevention and management	Protective fence around existing tank, new tank cover over existing open tank

ii. Young Farmers Capital Investment Scheme

In order to target support specifically at encouraging young farmers and to enable them to take on necessary infrastructural and technological changes, TAMS II incorporates a higher rate of aid intensity for young farmers. Thus, young farmers as defined in the Rural Development Regulation are eligible for a grant support of 60% of the eligible costs for identified capital projects. This 60% rate, which is higher than the general 40% rate, is designed to be a significant support for young farmers. As a complement to this measure, the Collaborative Farming Measure under the RDP has been designed to address some of the structural issues facing young farmers entering the sector and which inhibit generational renewal. In particular, the Collaborative Farming Measure is designed to alleviate issues relating to land mobility and channels of access to the sector. Depending on the individual investment item in question, the scheme is also expected to contribute towards other objectives (secondary effects).

iii. Dairy Equipment Scheme

In order to fully realise the potential for growth offered by the abolition of milk quotas, milk farmers are encouraged to invest and expand in a way that improves the efficiency and effectiveness of their operations. In this regard, as identified in the RDP, investment in dairy equipment has been identified as a priority area for investment under TAMS II. This scheme subsidises the purchase of cattle milking machinery and equipment. Given the end of milk quotas in the EU, the SWOT analyses, undertaken to inform the RDP, identified dairy as a major growth sector. However is also noted that infrastructure modernisation would be necessary to take advantage of this opportunity. The purpose of this scheme is thus to improve modernisation and competitiveness in the dairy sector through investment in items such as robotic milking machines, bulk milk tanks, milking equipment, storage and cooling equipment.

iv. *Tillage Capital Investment Scheme*

Since the 2016 amendment to the RDP, investment in the tillage sector has been identified as a priority area for investment under TAMS II. The Tillage Capital Investment Scheme within TAMS II is a grouping of investment items aimed at the tillage sector. The objective of the TAMS II scheme depends on the category under consideration. The tillage scheme subsidises the purchase or lease of equipment used in tillage farming, particularly low disturbance machinery, reducing environmental impact. Furthermore, DAFM have stated that it is intended also that “the inclusion of a separate strand for tillage farmers will contribute towards economic performance and modernisation” through reduced energy usage.

Table 1.4: Objectives by TCIS Category

TAMS II TCIS category	Focus Area	Objective	Examples of investment items
Structural and production	2A	To improve economic performance and facilitate farm restructuring and modernisation	Grain store, potato harvesting equipment, GPS machinery control
Farm Nutrient and Water Storage	4B	To improve water management including fertiliser and pesticide management	Rain water harvesting equipment, sprayers, fertilizer spreaders
Minimum Disturbance Tillage Equipment	5B	To increase efficiency in energy use	Minimum disturbance tillage equipment

v. *Pig and Poultry Investment Scheme*

In line with the RDP, this scheme covers investment in more energy efficient technology, water meters, and medicated water feeds for the pig and poultry sectors. It is noted that increasing energy costs have significantly impacted these two sectors in recent years. The purpose of this scheme, therefore, is to address this. Depending on the individual investment item in question, the scheme is expected to have a secondary impact on animal welfare, environmental impact and economic competitiveness.

vi. *Low Emission Slurry Spreading*

The low emission slurry spreading scheme incentivises the purchasing of less environmentally impactful slurry spreading equipment. The new technology reduces greenhouse gas emissions by spreading slurry directly onto the ground rather than methods that involve spraying slurry onto the ground which results in higher quantities going into the air. The primary purpose of this scheme is to reduce Greenhouse Gas (GHG) and ammonia emissions from agriculture.

vii. *Organic Capital Investment Scheme*

In line with the RDP, investment in the organic farming sector has been identified as a priority area for investment under TAMS II. The rationale behind this scheme is to foster the organic market in Ireland, which

is smaller, proportionally than the EU average⁵. This scheme is eligible to application only from licensed organic farmers. The scheme covers investment in a wide range of areas such as animal housing and nutrient storage facilities, grain, hay, straw and farm product stores, safety elements on existing farm structures, animal handling equipment, dairy milking and storage equipment, horticulture structures, polytunnels, specialised organic machinery and equipment. Depending on the individual investment item in question, the scheme is expected to have a secondary impact on risk prevention, animal welfare, environmental impact and economic competitiveness.

1.4 Data and Methodology

The analysis undertaken in this paper is based on programme data provided by the Department of Agriculture, Food and the Marine. The data relates to applications, approvals and payments drawn down across the relevant schemes within TAMS II as of 18 September 2017. The DPER IGEES Unit has collated and summarised this data for use within this paper. At this point it is worth noting a number of points. The data, as provided, relates to a number of stages within the process including application stage, approval stage and payment stage. As will be detailed in the paper, the precise individual payment that is undertaken within TAMS is typically paid at the rate of up to 40% of the cost of the investment with a higher 60% limit for certain applications (e.g. young farmers).

While data on the number of applicants, approvals and drawn down payments and the value of payments is readily available within the data, the outstanding value of applications that have been approved but not yet drawn down requires estimation. This is necessary as the precise payment drawn down from any application may vary as a percentage value of the total investment. As such, this paper estimates the total maximum value of outstanding approvals by calculating the value as being 40% (or 60% in the case of young farmers) of the investment cost, subject to an €80,000 maximum grant (€160,000 in the case of partnerships). The analysis of outstanding approvals should thus be seen as the estimated total maximum value of outstanding grant approvals. It should be noted that the actual level of drawn down payments or expenditure may be lower due to a variety of factors including investments not proceeding, penalties being applied or grant funding being at a rate lower than the maximum (40% or 60%).

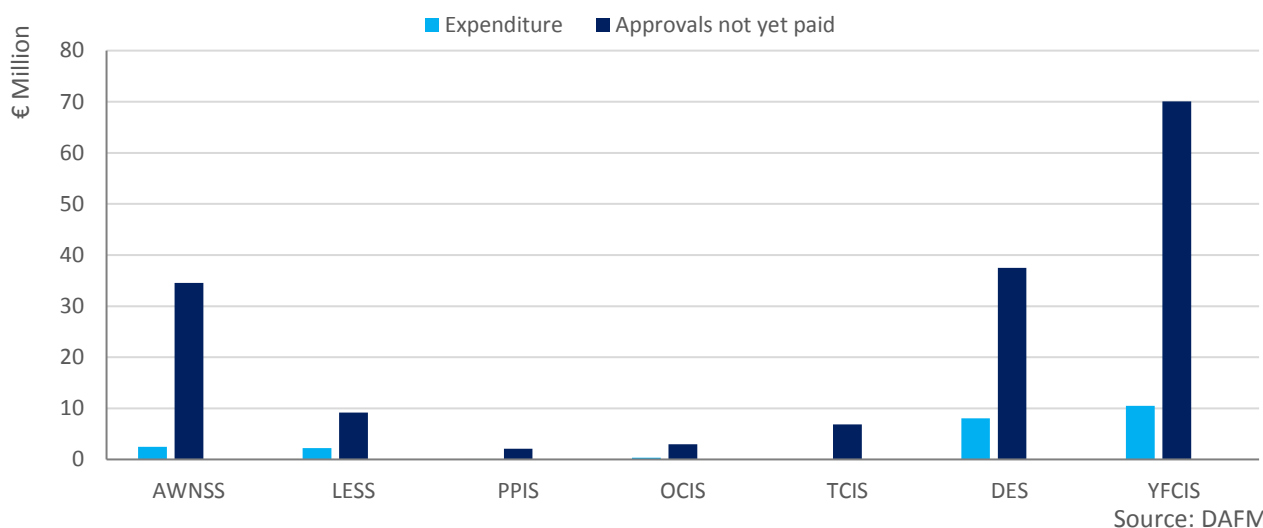
⁵ European Commission, 2014: EU Agricultural Market Briefs. *The Rapid Growth of EU Organic Farming*. Brussels.

2. TAMS II Expenditure

Total expenditure under TAMS II reached €23.6 million as of 18 September 2017, €19.7 million of which has taken place thus far in 2017. Initially, expenditure under the programme fell below expectations with a high level of underspend. For example, of the €35.8 million⁶ allocated to TAMS II in 2016, €4 million was spent which amounts to an underspend of 88.8%. While the level of expenditure taking place under the scheme has improved in 2017, it should be noted that annual expenditure as of 18 September 2017, at €19.7 million, is significantly below the scheme’s €50 million budgetary allocation for 2017 (39% of allocation), and DAFM’s own expenditure projections of €45.6 million. However, it is important to note that payment drawdowns under the scheme are ongoing, and any potential underspend for 2017 can only be calculated at year end.

2.1 TAMS II Approvals and Drawn down Payments

Figure 2.1: TAMS II Approved Expenditure and Payments by Scheme as of 18 September 2017



As can be seen from Figure 2.1 above, there are large variances between the value of payments that have been approved and the level of payments drawn down as of 18 September 2017. 85.5% of those who have received approval to take part in the scheme have not yet drawn down and received a payment under TAMS II. More than 2,600 approvals were issued under Tranche 1 of TAMS II, which closed to applications in September-November 2015. 43% of those who received an approval under Tranche 1 have gone on to make a payment claim, while the remainder of these approvals are outstanding. The variance between the number of approvals and number of payments arises from the fact that TAMS II is a demand-led scheme and the timing of the completion of works and the submission of a payment claim within the approval timeframe is a matter for the individual beneficiary concerned. It is therefore difficult to predict with a degree of accuracy when or even if all of these resources will be required.

⁶ Revised Estimates for Public Expenditure 2016

Figure 2.2: Proportion of Allocated Funding carried out and Approved by Scheme as of 18 September 2017

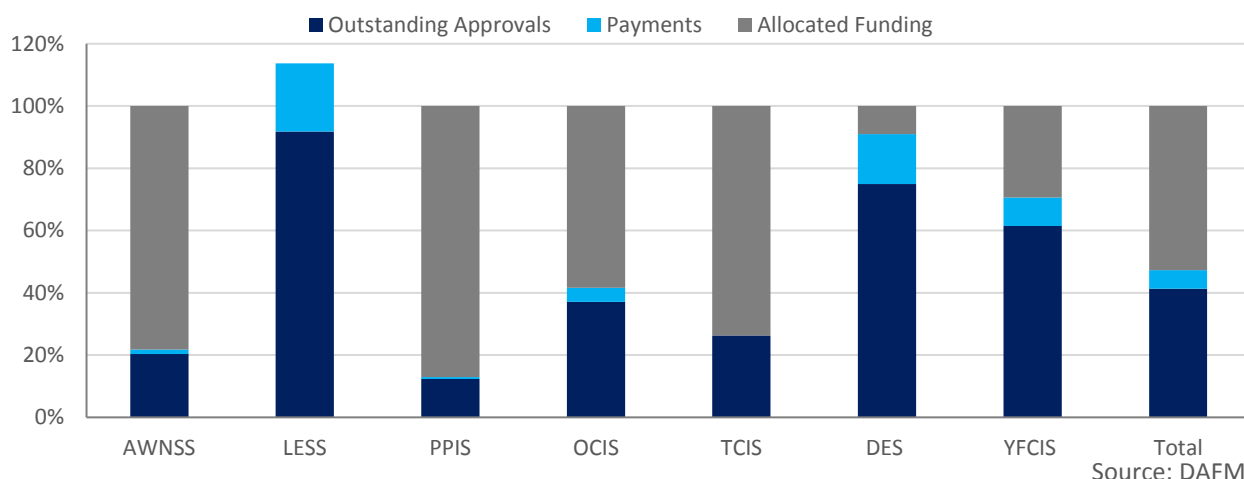


Figure 2.2 above illustrates the proportion of the funding allocated to each of the TAMS II schemes that has been spent and that which has been approved for investment but not yet drawn down by participants and further highlights some of the issues surrounding expenditure under TAMS II; particularly the issue of underspending and the sequencing of expenditure under the scheme in terms of the uncertainty surrounding the level of commitments and when they will be claimed. As of 18 September 2017, 6% of the €395million allocated to TAMS II has been spent, while approvals to take part in the scheme with an associated potential cost of 41% of the allocated funding have been issued but not drawn down/paid. The following differences between the level of payments/draw down that has taken place and the value of approvals that has been issued under each of the schemes are interesting to note;

- 22% of funding allocated to the Low Emission Slurry Spreading Scheme has been drawn down by recipients, while a further 92% (€9.2 million) of the funding has been approved but has not been drawn down. The drawn down payments and approvals therefore amount to more than the overall allocation for the scheme although it is not necessarily the case that all approvals will proceed to payments as previously outlined.
- The Dairy Equipment Scheme has paid out 16% of its allocated funding, while approvals with a value of 75% (€37.5million) of the funding allocated to this scheme has been approved but has not yet been drawn down by the beneficiary.
- 61.5% (€70 million) of the funding allocated to the Young Farmers Capital Investment Scheme has been approved but not yet drawn down.

Table 2.1: TAMS Tranches and Value of Outstanding Approvals

Tranche	Date Open	Value of Outstanding Approvals
Tranche 1-2	Mid 2015 - 25/03/2016	€60 Million
Tranche 3	26/03/2016-24/06/2016	€25.7 Million
Tranche 4	25/06/2016-30/09/2016	€21 Million
Tranche 5	01/10/2016-13/01/2017	€17.3 Million
Tranche 6	14/01/2017-07/04/2017	€13.8 Million
Tranche 7	08/04/2017- 30/06/2017	€20.8 Million

Note: Date Open refers to the period during which applications were received for the relevant tranche rather than date of approvals and/or payments.

Table 2.1 details the relevant tranches that have been undertaken as part of the TAMS II programme to date. As can be seen, there have been 7 tranches of applications to date, with an 8th Tranche open to applications until 6 October 2017. In total the outstanding value of applications that have been approved but not yet drawn down is €158.6 million⁷. Expenditure under the programme, as previously detailed, was €4 million in 2016 and €19.7 million thus far in 2017 (18th September) indicating the level of applications that have been completed through to draw down. Given the high level of outstanding approved applications it is important to understand the potential future flow of funding. In this regard, two points are relevant:

- Firstly, applications approved from tranches 1-5 have a three years period where applicants can draw down the funding from the date of approval.
- Secondly, all applicants from tranche 6 onwards must complete the drawdown of funding within either 6 or 12 months from the date of approval.

It is not possible based on currently available data to accurately predict the level of approved applications that will result in grant draw down and indeed the timing of payment. However, given the rules outlined for drawdown timing it is possible to set the following parameters in relation to the outstanding applications, which have a value of €158.6 million, based on the period in which applications from each tranche were approved.

- €54.5 million of the approved applications that have yet to be drawn down will have expired by end-2019 as they were approved in 2016 from tranches 1-5.
- €69.8 million of outstanding approved applications will have expired by end-2020 as they were approved in 2017 from tranches 1-5.
- €34.6 million of the outstanding approvals will have expired by end-2018 as they are from tranches 6 and 7.

⁷ This figure relates to outstanding approved applications that are yet to receive payment.

As such, it is clear that the value of outstanding approvals that have not yet been drawn down and paid is high and will be a factor in the overall expenditure of the scheme until the end of 2020. The precise value of approvals carried forward into future years is a function of both this drawdown expiry dynamic and the extent to which the outstanding approvals are actually drawn down in the intervening years. This highlights the importance of considering the precise funding profile in-depth.

Going forward, if draw down and expenditure do not meet expected levels, it is important to note that the scheme funding cannot be automatically carried forward to the next year. This is due to the Fiscal Rules as laid out in the Stability and Growth Pact. In the case of persistent underspends, there are two potential areas for consideration.

1. It may be possible to utilise the Capital Carryover mechanism (whereby up to 10% of the Department's total Capital budget can be carried into the next year if unspent and if sanction is provided by DPER). This is not specific to DAFM or TAMS.
2. Otherwise, additional resources for TAMS would have to compete with all other expenditure priorities in context of the annual Estimates process.

The implications of an ongoing underspend within TAMS II raises concerns about DAFM's ability to contain Exchequer exposure to RDP-related expenditure within the available fiscal space out to 2020. While under the 2007-2013 RDP, DAFM may have satisfied latent demand through the processing of payments into the period during which the present RDP (2014-2020) became operational, due to the fiscal rules as laid out under the reformed Stability Growth Pact such an option no longer exists post 2020. In the context of uncertainty around the CAP post-2020, DAFM may face challenges to progress the Agri-food, Forestry and Fisheries sectors with the potential for reduced availability of EU co-funding, although the precise impacts are unclear at this point.

The Department of Agriculture, Food and the Marine has taken steps to address the uncertainty and unpredictability of expenditure under the scheme by shortening the window during which those that received approvals from Tranche 6 (opened 14 January 2017) onwards can claim payment having received approval. Going forward, approvals issued will expire within one year where the approval relates to building work being carried out and 6 months where mobile equipment only is required. This will improve to a degree the situation in terms of uncertainty surrounding when the funding will be drawn down. However, the issue of existing commitments as identified through this section remains. Hence, the issues surrounding the carry-over of expenditure raises the question of whether the process could be better aligned to the annual budgetary cycle with consideration, for instance, of whether the commitment period should be shortened further.

In the Report of the Comptroller and Auditor General on the Accounts of the Public Services 2008⁸ examining the Farm Improvement Scheme and the Farm Waste Management Scheme, the extent of the liabilities which can arise due to an inability to determine commitments under the scheme was identified as an issue of both schemes. It was recommended that a more refined method of gauging financial commitments be used, by creating a forecasting model using standard costs for different claim types. While there are many differences between these two schemes and TAMS II, all of them had funding allocated from the Exchequer and elements of the learnings gained from the aforementioned report have relevance to this review of TAMS II. While TAMS II has adopted the use of ranking and selection and opens to applications in tranches in order to track committed expenditure, a refined model as per the recommendation of the report would also be useful in monitoring expenditure under TAMS II. By creating a clearer picture of when and how much these resources may be required, a model such as this would allow for a more efficient allocation of resources.

In monitoring expenditure under TAMS II it is also important to note the administration of payments under the scheme. Due to the need for inspections and the possibility of penalties being imposed there is often a delay between applicants making a payment claim and a payment being made. In some cases this has resulted in payment issuing in the following budgetary period from when the payment claim was made. From the point of view of the Exchequer this expenditure is considered part of the allocated expenditure from the period in which the payment is made rather than when applicants submit a payment claim. This delay should, therefore, be taken into consideration when projecting TAMS II expenditure.

2.3 TAMS II Payments

Although it is early in the scheme it is useful to examine the pattern that has emerged in relation to approvals and payments. The following analysis looks at the variation that exists between approvals⁹ and payments as of 18 September 2017 and seeks to identify patterns amongst different cohorts in relation to the drawdown of expenditure. Identifying whether particular cohorts have so far been less likely to claim/receive payment under TAMS II, having been approved to take part, will inform our understanding of the factors driving the trend. The following series of graphs illustrate the proportion of applicants that have gone on to receive payments under TAMS II and a comparison of the average approved investment and the average payment made up to 18 September 2017.

The design of TAMS II places a limitation on profiling which groups are less likely to receive payment on an approved investment at such an early stage of the scheme. As previously discussed, those who received approvals in Tranche 1-5 have up to 3 years to make a payment claim, and those approved from Tranche 6 onwards will have between 6 months to 1 year to make a payment claim. Given the limitations in relation to

⁸ Report of the Comptroller and Auditor General on the Accounts of the Public Services 2008

⁹ Note: approvals refers to all approvals issued including those that have progressed to payment.

the time frame during which participants can make a payment claim, and due to the short time period under consideration, it is impossible to draw conclusions regarding the likelihood of certain groups to progress to the payment stage of the process. We can only look at the pattern that has emerged as of 18 September 2017.

2.3.1 Approvals and Payments by Region

Figure 2.3: Average Approved Investment and Average Payment by Region, September 2017

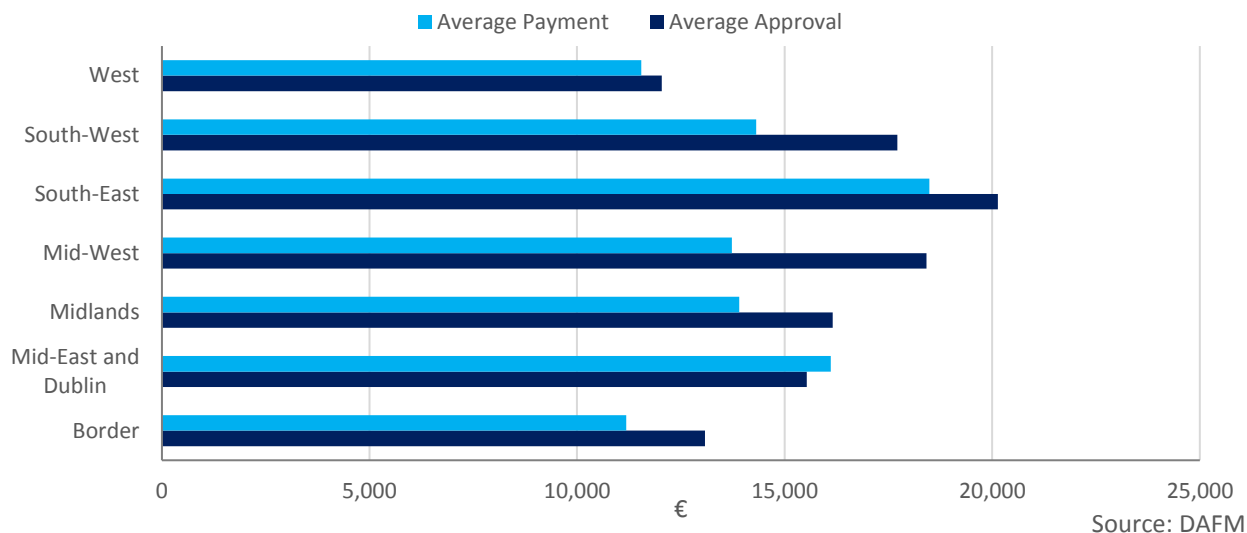
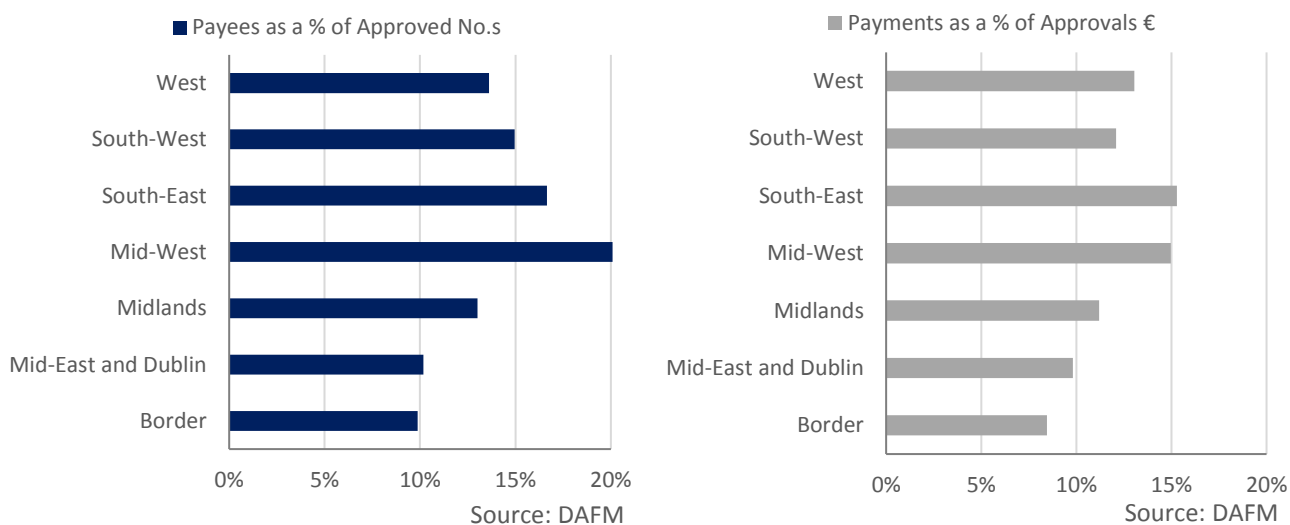


Figure 2.3 shows that the average approval is relatively higher in the South-East, Mid-West and South-West and this may be driven by a number of factors including farm types and other characteristics. In addition, we can see that the average payment made is typically less than the average approval under the scheme. Farms in the South-West and Mid-West regions have the largest variance between the investment that was approved under the scheme and the claimed payment received.

Figure 2.4: Payments as Percentage of Approvals (No.s and €), September 2017



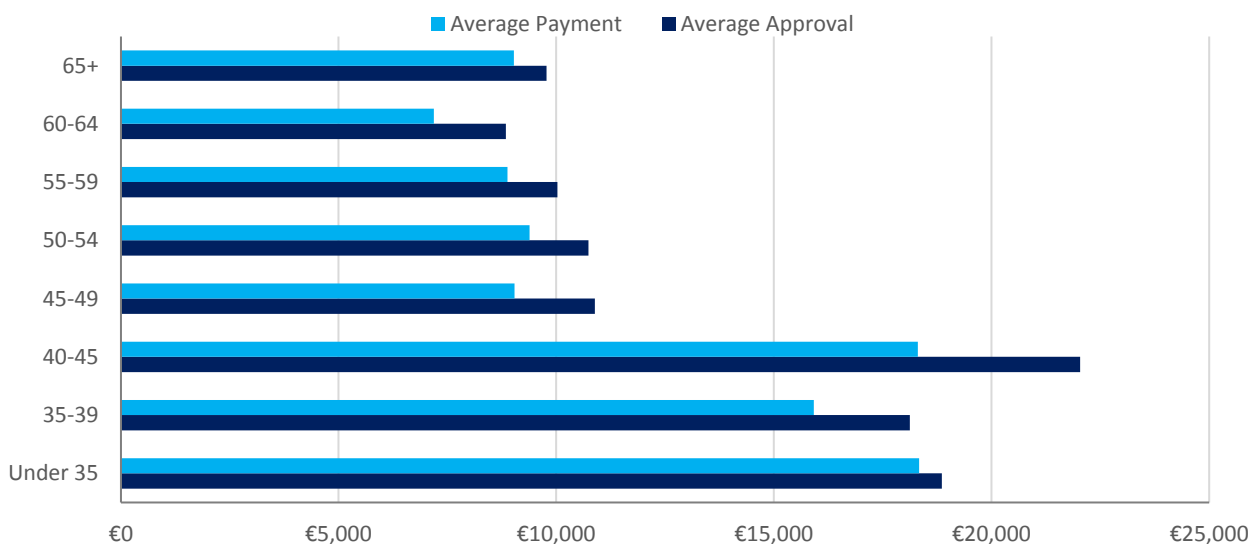
- Farms in the Mid-West have the highest rate of payments from approvals with 20% of approvals issued in this region receiving payment. Farms in the South-East also have a high rate of payments from

approvals. However, in monetary terms the Mid-West and the South-East have each claimed 15% of the expenditure approved within their respective regions. This suggests that while farms in the Mid-West are proceeding to the payment stage of the scheme, those receiving payments are either receiving less than their proposed investment or it is farms with smaller investments that are making payment claims.

- The Border region and the Mid-East and Dublin each have the lowest conversion rate between approvals and payments. 10% of farms in the Border region that have received an approval to take part in the scheme have gone on to receive payment, and 8% of the expenditure that has been approved in this region has been paid. 10% of farms in the Mid-East and Dublin that were issued with approvals have gone on to receive a payment, while close to 10% of the value of approvals in this region has been paid.

2.3.2 Approvals and Payments by Age

Figure 2.5: Average Approved Investment and Average Payment by Age, September 2017



Source: DAFM

The average payment received by young farmers remains above that of other age groups, due to the fact that young farmers receive a higher subsidy rate. However, there is the largest differential between the average investment that is approved amongst this category and the average payment that is made to farmers in this age group. However it should be noted that under the Young Farmer Capital Investment scheme, farmers who do not have the relevant educational requirements can receive a grant at the standard 40% rate, they are then given a 36 month window to meet the education requirement and receive a top up payment, bringing them up to the 60% rate available under the scheme. This may be a factor in the observed trend to date.

Figure 2.6: Payments as Percentage of Approvals (No.s and €), September 2017

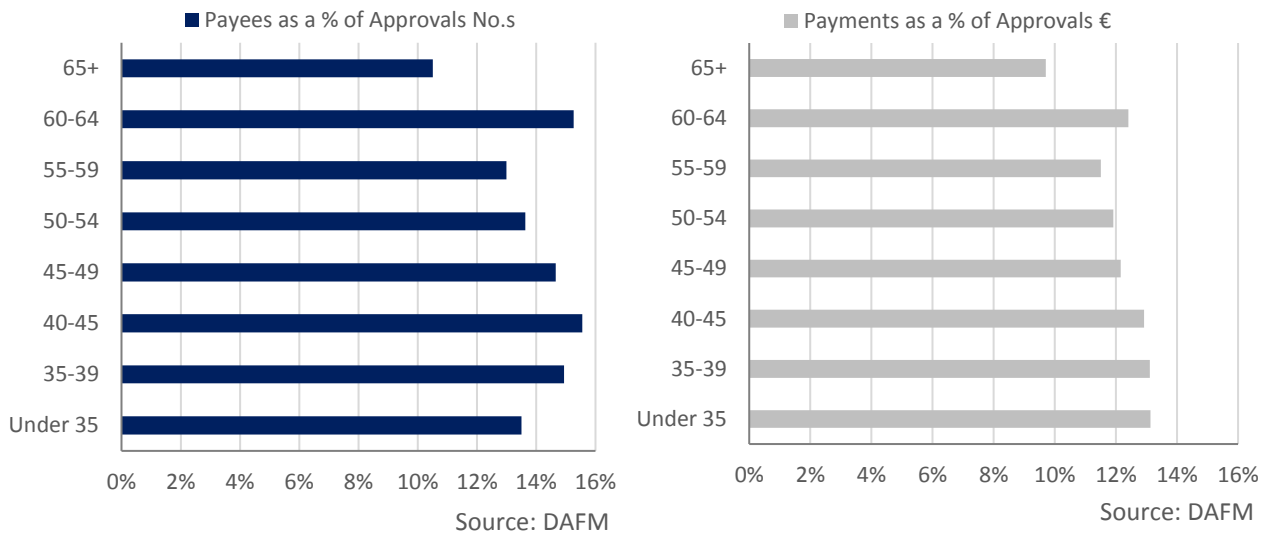


Figure 2.6 above shows that the rate at which farms progress from the approval to the payment stage of the scheme is broadly similar across each of the age groups, in terms of both the numbers receiving payment and the value of these payments as a proportion of the amount approved.

- The lowest level of conversion from the approval to the payment stage is amongst those in the 65+ age category, with 11% of those who have received approval going on to receive payment.
- While almost 16% of those in the 40-45 age group who have received approval to take part in the scheme have drawn down and received payment.

2.3.3 Approvals and Payments by Farm Size

Figure 2.7: Average Approved Investment and Average Payment by Farm Size, September 2017

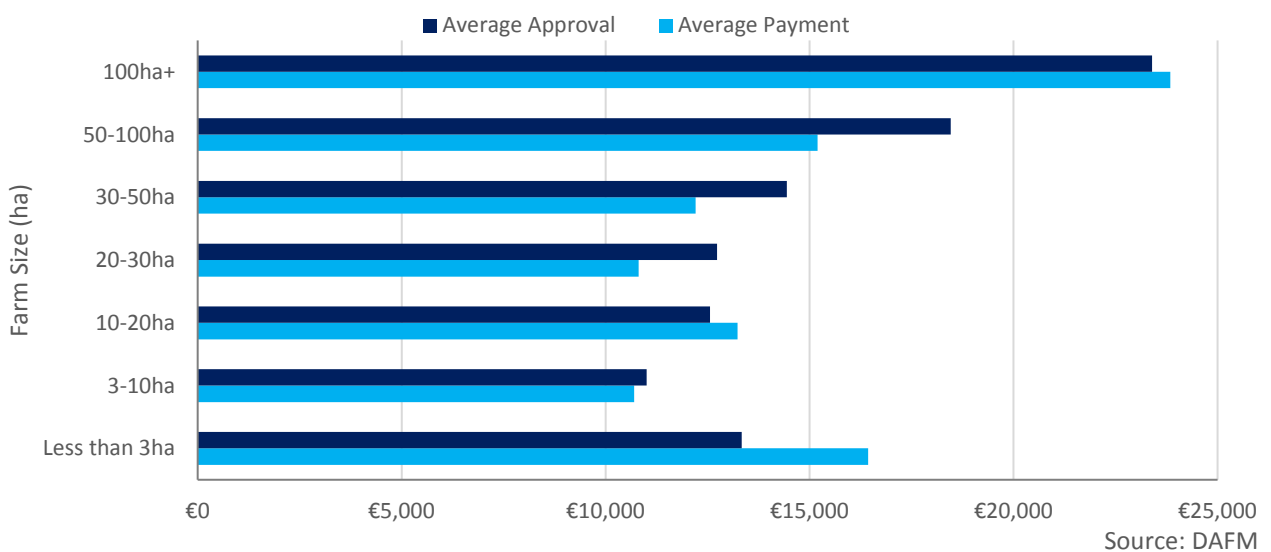


Figure 2.8 shows that the average approval issued is highest for the largest farms (100ha+) and again this may be driven by a number of factors. In addition, a similar trend can be seen across a number of farm size categories as has been seen across different categories with the average payment made under the scheme

thus far tending to be less than the average approval issued. This is true across most farm sizes except for farms of less than 3ha, between 10 and 20ha. and farms of 100ha and more. Average payment being higher than average approval at this stage in some categories may be due to larger than average investments progressing thus far.

Figure 2.8: Payments as Percentage of Approvals (No.s and €), September 2017

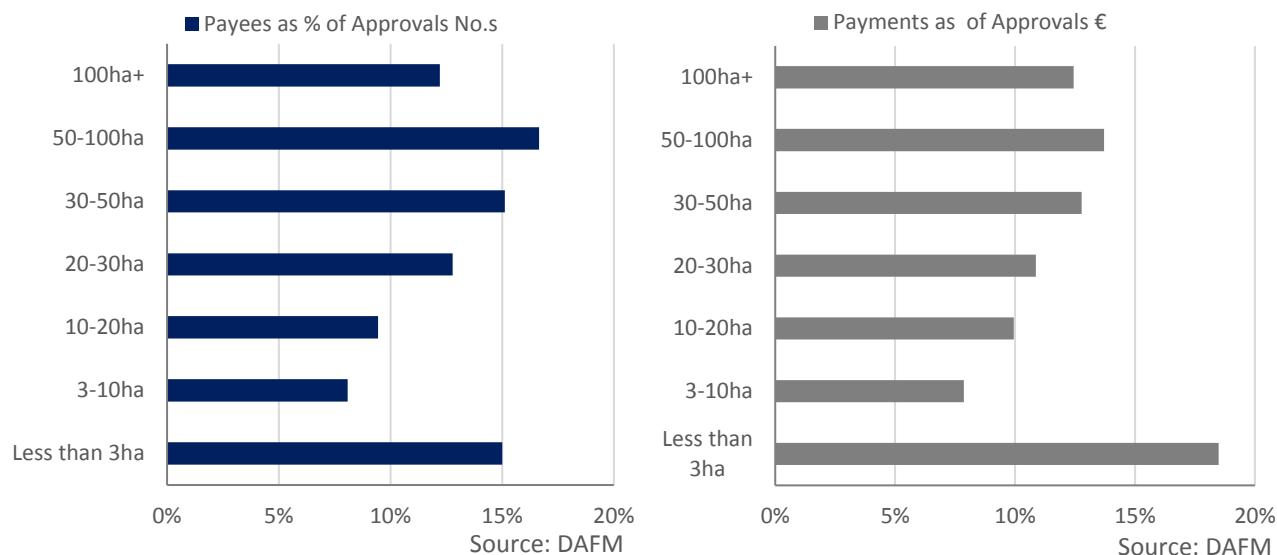
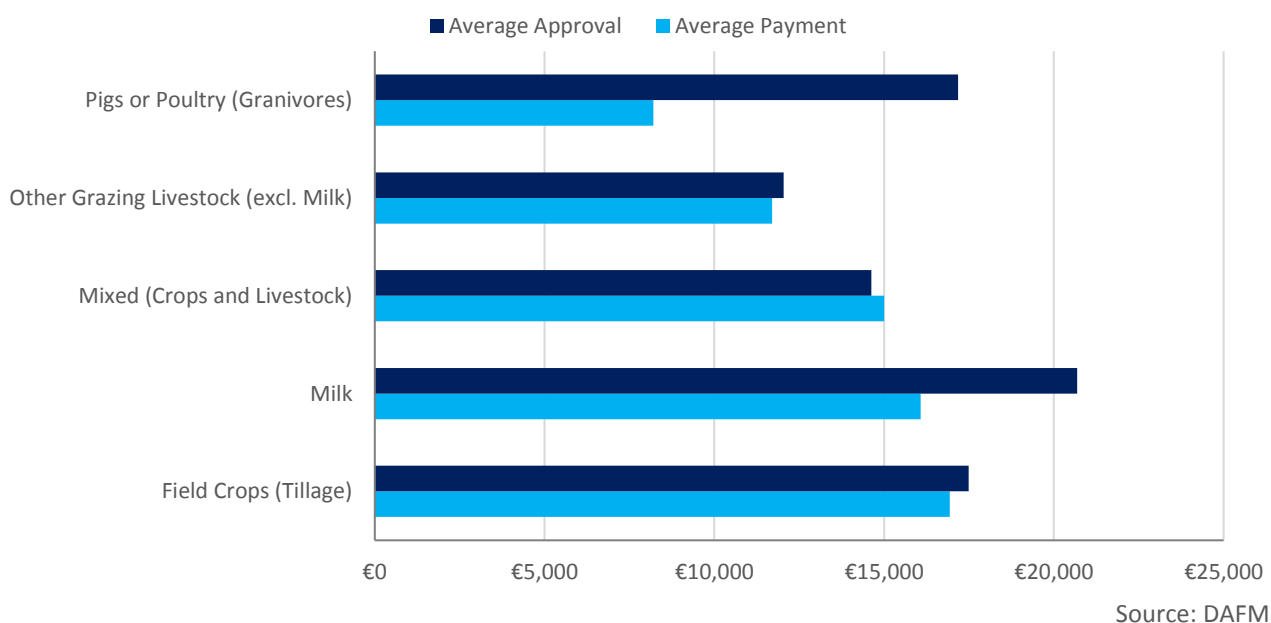


Figure 2.8 above shows that 8% of farms between 3 and 10ha that received an approval have gone on to drawdown and receive a payment under the scheme. In contrast, 17% of farms of between 50-100ha with approved investments have received payment under the scheme.

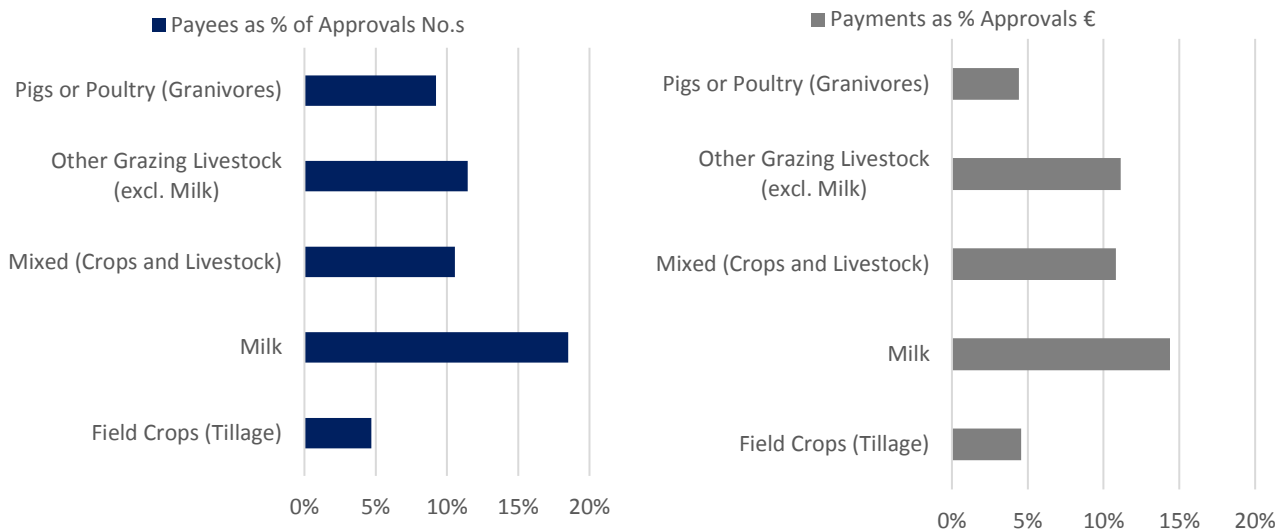
2.3.4 Approvals and Payments by Farming System

Figure 2.9: Average Approved Investment and Average Payment by Farming System, September 2017



Farms in the milk category receive the highest average approval, though the average payment received thus far by this group is almost €4,000 less than the average value of approvals issued to this group. The largest difference between the average approval and average payment is amongst pig and poultry farms.

Figure 2.10: Payments as Percentage of Approvals (No.s and €), September 2017



Source; DAFM

Figure 2.10 above shows that 19% of farms in the milk category that have been approved to take part have gone on to receive payment under the scheme. In terms of expenditure milk farms have claimed 14% of the value of their approvals. 5% of tillage farms that received approval have gone on to receive payment, this result is likely due to the fact the Tillage Capital Investment Scheme first opened to applications in March 2017.

This analysis suggests that of those who have received payment as of 18 September 2017, milk farms, large farms, and farms in the South-East and Mid-West have been more likely to progress from the approval to the payment stage of the process. Overall, the average payment made under the scheme has been lower than the average estimated value of approvals issued. There are multiple factors that could be driving this trend. For example, smaller investments may be quicker to execute or a smaller payment than was initially approved may be paid due to the penalties that can be imposed where work is not carried out to the approved standard or in cases where a top up payment will be paid, resulting in the observed pattern up to 18 September 2017. Based on the design of the payment claim system and the short time frame under consideration, it is impossible to draw a conclusion at this stage regarding the cause of this, but the trends identified in this analysis can help to highlight the need to consider the operation of the scheme, informing the future administration of the scheme and similar schemes run by the DAFM in the future.

A phone survey on a sample of 257 farmers that had investments approved under the scheme but are yet to make a payment claim was carried out on behalf of DAFM in May 2017 (see Appendix v for further details).The

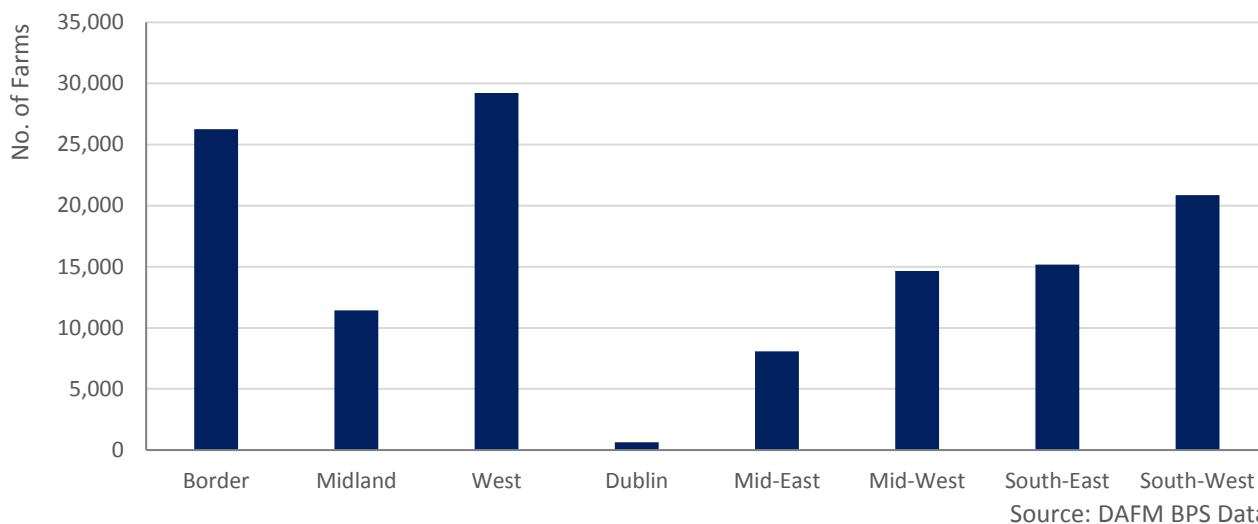
results of the survey provides some indication of why farms have not yet carried out their approved investments.

- 66% of farms who do not intend to proceed with their investment said that the project was too big to undertake.
- 83% of young farmers intend to proceed, whereas 90% of farmers outside of this category intend to proceed with the investment.
- 28% of young farmers cited a change in personal circumstances as the reason they have not yet carried out their investment, which is significantly higher than the total. 19% of young farmers said they have not yet carried out their investment due to the cost of matching funds, while 10% of non-young farmers cited this as an issue.
- 36% of farms in Munster cited a fall in income as the reason for having not yet carried out their investment. In contrast to this 15% of farms in the rest of Leinster category indicated this was a reason, significantly less than the total. 23% of farms in Connacht/Ulster said that they plan to fund the investment through the sale of assets, in contrast to 3% of farms in Munster.

3. Profile of Farm Population

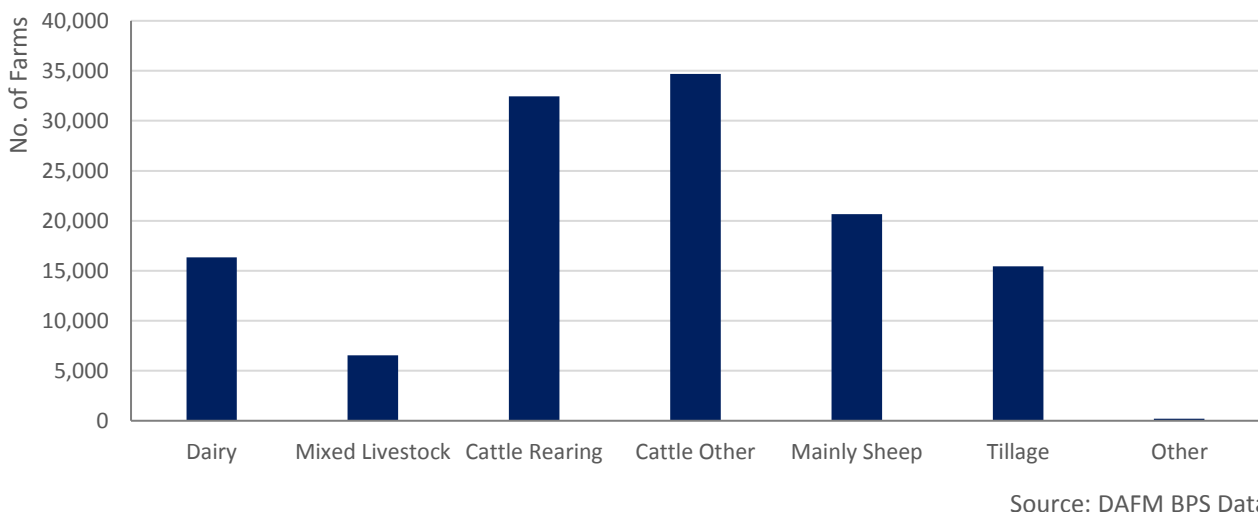
The purpose of this section is to provide a brief overview profile of Irish farms to contextualise TAMS II. The analysis here is based around a number of variables relevant to this review of TAMS II such as age of the holder, size of holding, region and farming system. The number of farms in each of these categories is included, as well as information on the characteristics of those in each of these categories.

Figure 3.1: Number of Farms by Region, 2015



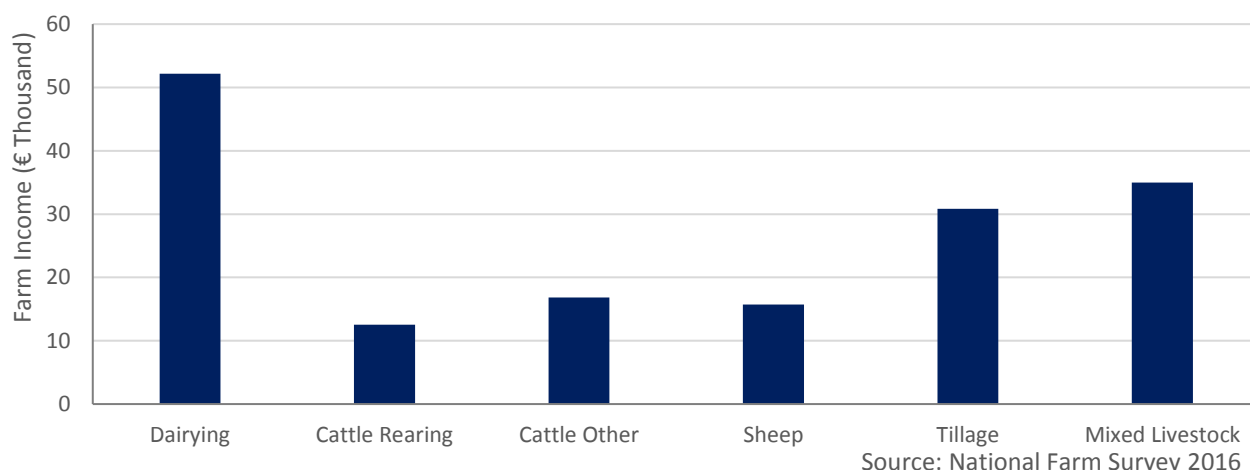
As highlighted in Figure 3.1, the majority of farms are found in the West, while Dublin, the Mid-East and the Midlands have the fewest farms.

Figure 3.2: Number of Farms by System of Farming, 2015



Cattle Rearing and Cattle Other account for the largest number of farms, with Mixed Livestock comprising the smallest share of farms.

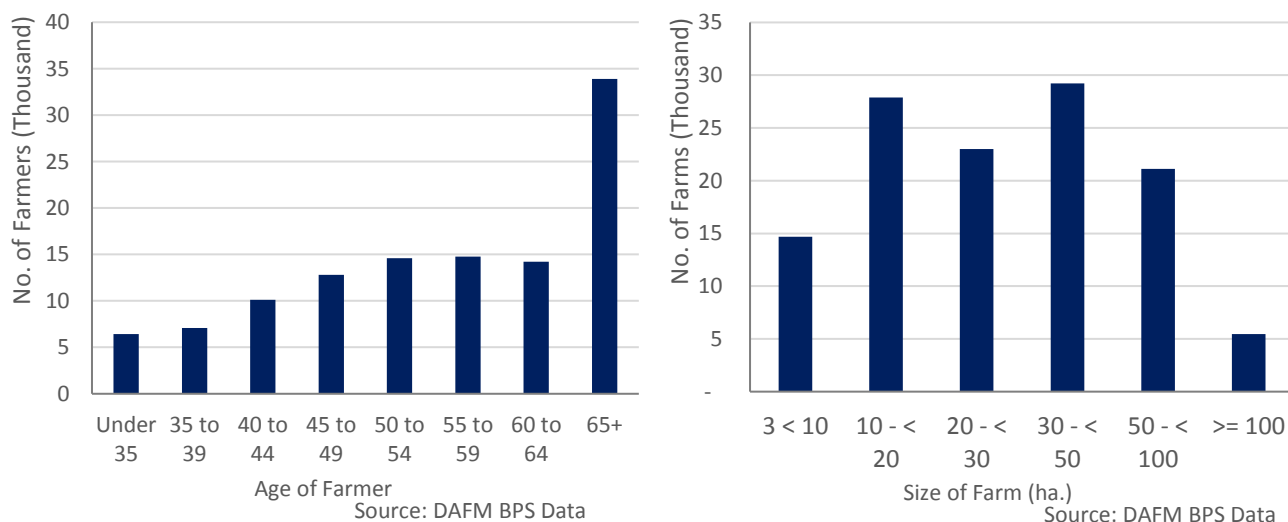
Figure 3.3: Farm Income by System of Farming¹⁰, 2016



Dairy farms have an average income of €52,151, more than double the average income across all farms (€23,847). Cattle Rearing have the lowest average income, followed by Cattle Other and Sheep farms. Dairy farmers experienced the largest decline in farm income between 2015 and 2016 with a fall of 17%, Tillage farms experienced a 10% fall in farm income while Cattle farms experienced a small increase, which is attributable to an increase in support payments¹¹.

According to Teagasc’s National Farm Survey 2016, 37% of Irish farms are viable while 29% are sustainable and the remaining 34% are vulnerable¹². When viability is broken down by farming system large differences can be seen across the various systems. More than 60% of dairy farms are viable, with less than 20% vulnerable. 20% of Cattle Rearing farms are viable, while 40% are considered vulnerable.

Figure 3.4: Number of Farms by Age Group and Farm Size, 2015



¹⁰ Refers to family farm income which is the gross output less total net expenses, it represents the total return to the family labour, management and capital investment in the farm business.

¹¹ National Farm Survey 2016

¹² Viable farms refer to those which the farm income can remunerate family labour at the minimum agricultural wage and provide a 5% return on capital invested in non- land assets. Farms are categorised as sustainable where the farm business is not viable but the farmer or spouse has off- farm income. Farms are considered to economically vulnerable if the farm business is not viable and if neither the farmer nor spouse work off the farm.

The under 35 age group and the 35-39 age group, who each qualify as young farmers under TAMS II, make up only a small share of all farms while the 65+ age group accounts for a substantial number of farms. Most farms in the country are between 30-50 hectares or between 10-20 hectares. Farms of 100 hectares or more account for the fewest number of farms in the country.

Based on the findings of the National Farm Survey 2016¹³ the following general points are of note in the context of this review of TAMS II;

- Farms in the Mid- East and the South- East are the largest with an average size of 55.5 ha and 57.9 ha respectively. In contrast, farms in the West are the smallest with an average size of 35.7 ha.
- The average age of the farm holder in both the South- East and West is 53, the lowest of all the regions. Farmers in the Midlands have the highest average age of 59.
- Dairy farmers are on average younger than farmers in other areas with an average age of 50.6. While Sheep, and Tillage farmers are the eldest on average.
- Mixed Livestock farms are the largest farms on average, followed by Tillage farms. Cattle Rearing and Cattle Other farms are on average the smallest.
- Farmers in the 2-10 hectares category were found to be the eldest with an average age of 63.9, while farms with 100 hectares or more have the lowest average age at 53.8.
- Dairy farms accounted for 36% of total farm investment in 2016. Gross new investment in farming in 2016 declined by 8% from the previous year.

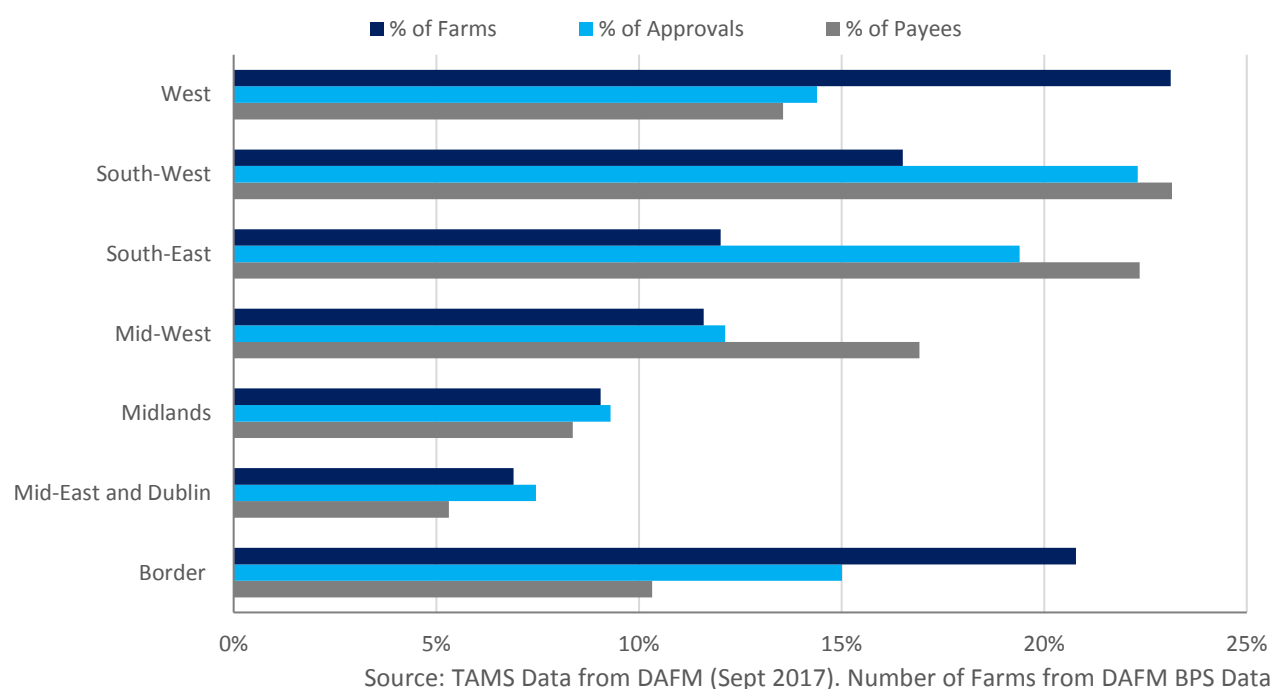
¹³ National Farm Survey 2016 Data included in Appendix iV

4. Profile of TAMS II Approvals and Payments

The following analysis shows the distribution of TAMS II participants in comparison to the distribution of the population of the agricultural industry in Ireland as a whole under various categories. Though the scheme is only at an early stage, creating this comparison is useful as it allows us to analyse the participants of the TAMS II scheme in the context of the population of farms in Ireland. The comparative analysis, although limited by the limited time TAMS has been operational, may help to inform our understanding of the purpose of the scheme in the context of its stated objectives and could be beneficial in future evaluations and analysis. Furthermore, as was the case with section 2 of this paper, this analysis is limited to commenting on the trend up to September 2017 rather than drawing a conclusion on the scheme as a whole.

4.1 TAMS II Participants by Region

Figure 4.1: Proportion of Approvals, Payments and Farms by Region (%), September 2017



The above figure shows the proportion of farms in each region in comparison to the proportion of approvals, and payments that are associated with each region as of 18 September 2017. The following results emerged from the analysis;

- Farms in the South-East account for 12% of farms in the country, while 22.4% of the payments under TAMS II up to 18 September 2017 were to farms in the South-East. In addition, the South-East stands out as its representation amongst those who have had investments approved under TAMS II (19%) and those who go on to receive payment under the scheme. This suggests that, as of 18 September 2017, farms in the South-East were more likely to carry out the approved investment and go on to receive payment under the scheme.

- 23% of all farms are found in the West, while 13.5% of the payments made under TAMS II up to 18 September 2017 were made to farms in this region.
- Farms in the Border region account for 20.8% of all farms, yet 15% of the approvals issues and 10.3% of payments are to farms in this region. The large fall in the share of approval and the share of payments made is of particular interest as it suggests that farms in the Border region are amongst the least likely to progress from the approval to the payment stage of the TAMS II process.

4.2 TAMS II Participants by Age

Figure 4.2: Proportion of Farms, Approvals and Payments by Age, September 2017

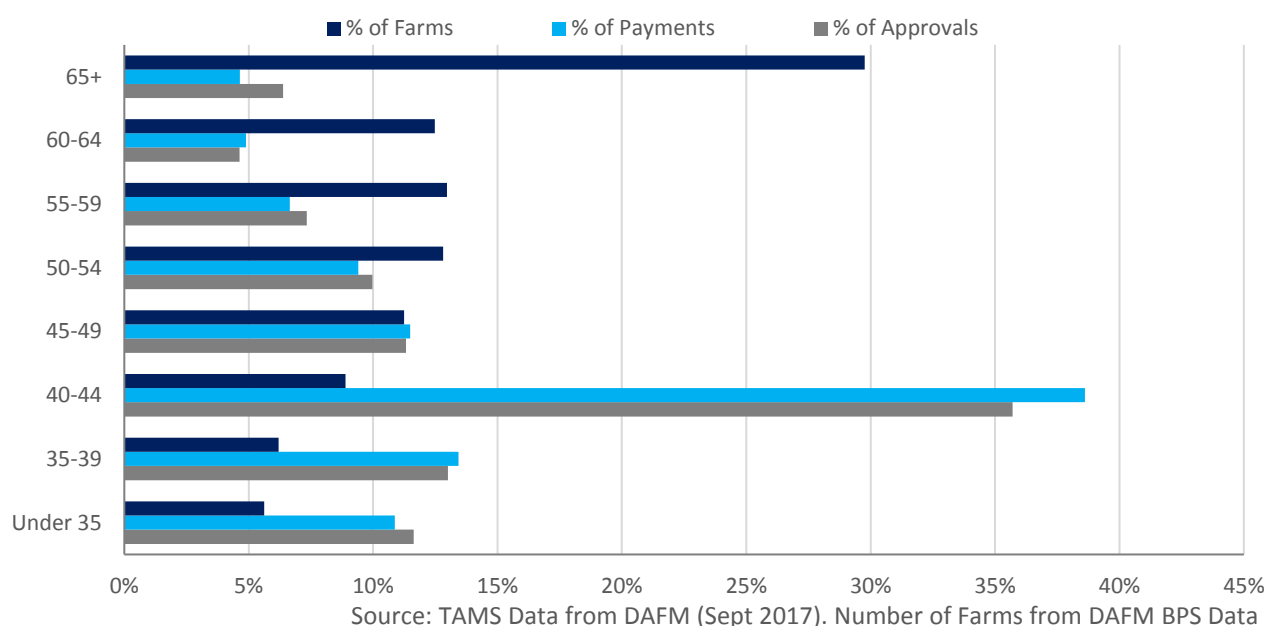


Figure 4.2 illustrates the proportion of the various age categories within the sector, the proportion of TAMS II approvals and the payees from each of these age groups. Support for young farmers is central to the objectives of TAMS II. Young farmers are targeted specifically under the Young Farmers Capital Investment Scheme, under which farmers under the age of 40 who meet the education requirements can receive a grant of up to 60% of their investment. Similarly under the Organic Capital Investment Scheme young farmers can receive up to 60% of their investment rather than the 40% received by other age groups. Furthermore each of the schemes awards higher marks at the application stage to young farmers, making young farmers more likely to progress to the approval stage of the scheme.

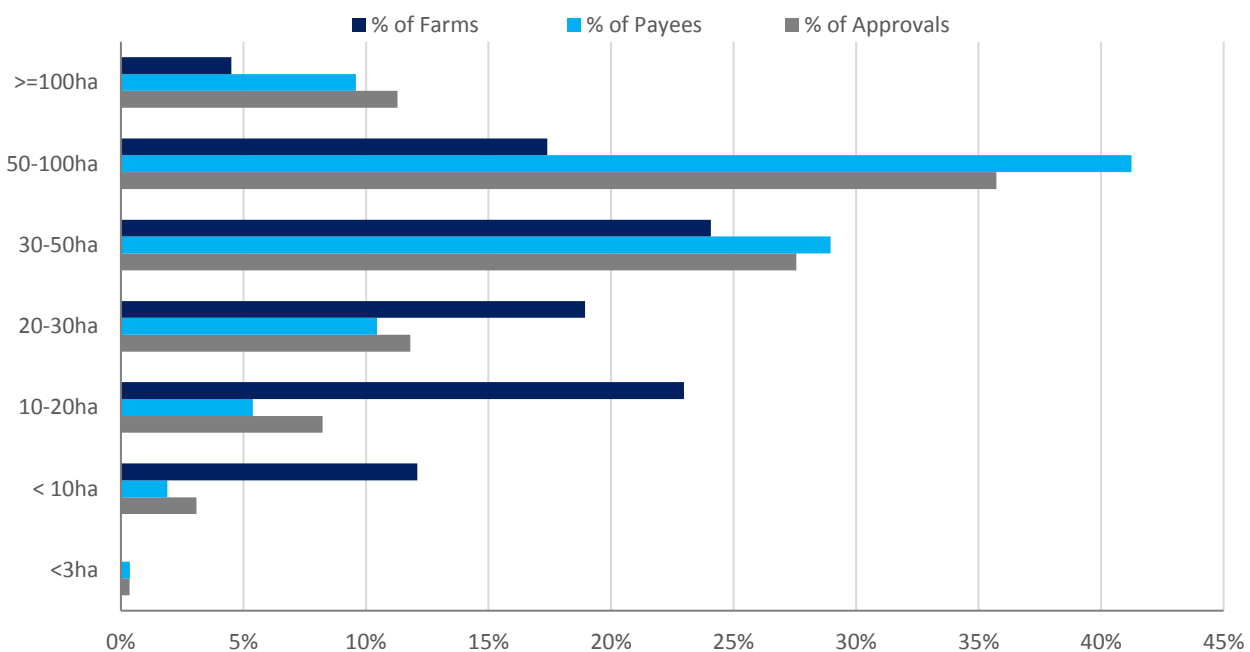
In the analysis of TAMS II participants by age group, the following results emerge;

- Farmers under 35 account for 5.63% of all farmers, and are the recipients of 10% of all the payments that have been made under the scheme. The age group *Under 35* have received 11.6% of the approvals issued as of 18 September 2017.

- Those in the age group 35-39, who also qualify for a higher level of support under TAMS II, make up 6.21% of the sector yet account for 13.4% of TAMS recipients.
- Farmers aged between 40 and 44 tend to represent a far higher share of TAMS II participants than their share of the sector. This age group accounts for less than 10% of farms, yet 38.6% of payments made under the scheme to date have been to farmers in this age category. The majority of farmers within this category that have received a payment under TAMS II are aged between 40 and 41 and therefore qualify as a young farmer under the scheme.
- Those in the higher age categories (aged 55 and above) comprise a large proportion of the sector yet represent a smaller proportion of TAMS II participants.

4.3 TAMS II Participants by Farm Size

Figure 4.3: Proportion of Farms, Approvals and Payments by Farm Size, September 2017



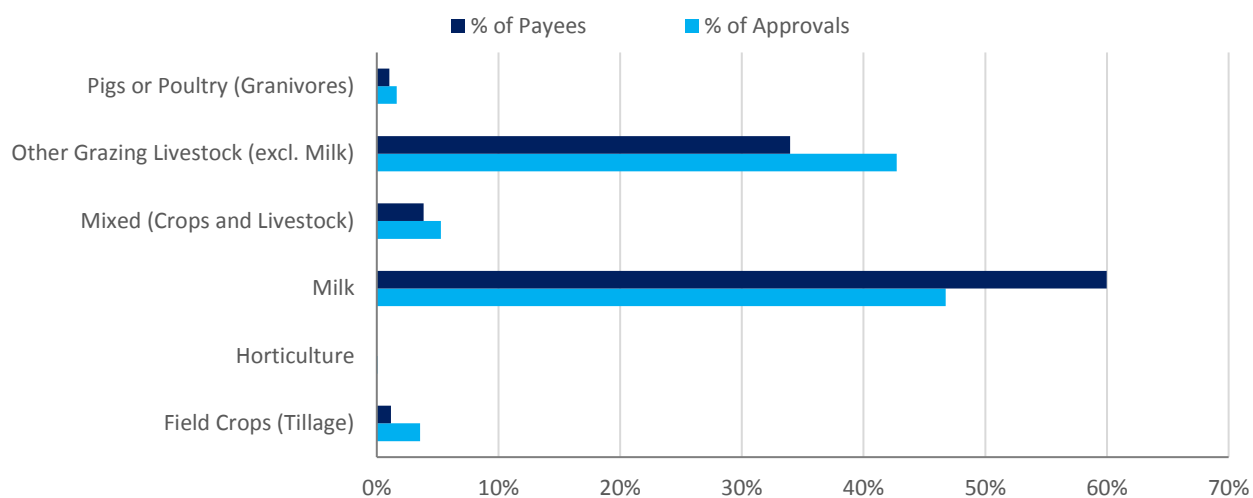
Source: TAMS Data from DAFM (Sept 2017). Number of Farms from DAFM BPS Data.

The above figure compares the proportion of farms, TAMS approvals and payments that each size category of farms represents. The following results emerge from this analysis;

- Farms of less than 30 hectares tend to represent a large share of the sector as a whole yet have received a relatively lower proportion of the payments made under TAMS II up to 18 September 2017.
- In contrast, farms above 30 hectares tend to represent a larger proportion of TAMS II recipients relative to the number of large farms in the sector. In particular farms of between 50 and 100 hectares account for 17.4% of farms, yet 41.2% of TAMS II payments have been made to farms in this category.

4.4 TAMS II Participants by Enterprise Type

Figure 4.4: Proportion of Approvals and Payments, September 2017



Source: TAMS Data from DAFM (Sept 2017).

Figure 4.4 above shows the share of TAMS II, approvals and payments across the category enterprise type. Based on the categorisation of farm type in the TAMS II application process, a direct comparison with the wider sector cannot be made. The following results can be drawn from the above;

- Farms in the Milk category have so far been in receipt of almost 60% of the payments made under TAMS II, while representing approximately 45% of TAMS II participants despite Dairy farms accounting for 13% of farms in the sector. These results suggests that farms in this category have been more likely to progress from the approval to the payment stage of the scheme.
- 43% of payments made so far under TAMS II have been made to farms in the category Other Grazing Livestock (excl. Milk).
- Farms in the Field Crops (Tillage) and Pigs and Poultry (Granivores) categories each represent less than 2% of payees thus far.

Based on this analysis it can be seen that large farms, milk farms, young farmers and farms in the South-East and South-West have thus far received a relatively high proportion of the funding administered under TAMS II as of 18 September 2017. This result follows from the design of the scheme and the application process and also reflect the structure of the agricultural sector in Ireland. For example, the average age of Dairy farms is lower than the average age and Dairy Farms accounted for a large share of the on farm investment that took place in 2016.

These results speak only to the trend that has emerged at this early stage of the scheme, it is impossible to draw a conclusion based on this analysis regarding whether TAMS II is meeting its objectives due to the broadly defined objectives of the scheme and due to the short time period under consideration.

5. Effectiveness

5.1 Evaluation

Schemes which are provided through public funding must be subject to a thorough evaluation process in order to ensure value for money and illuminate areas for potential benefit/efficiency gains. According to the Public Spending Code, if considered in isolation, TAMS II would be subject to the normal evaluative process for large current expenditure schemes.¹⁴ If full drawdown is achieved, the scheme will incur €395 million during its lifespan, and therefore warrants close examination of effectiveness. Assessment of TAMS II takes place in aggregate, through a high level evaluation of the RDP, as required through the EU Common Monitoring and Evaluation Framework, and through a complementary specific assessment of TAMS which is to be carried out by the DAFM using data collected through the National Farm Survey.

Under the EAFRD regulation, a Common Monitoring and Evaluation Framework (CMEF) is established to demonstrate progress and achievements of the RDP; to assess the impact, effectiveness, efficiency and relevance of RDP interventions; to contribute to better targeted support for rural development; and to support the measuring of the performance of the CAP as a whole. Under the CMEF, each RDP includes the following elements:

- an ex-ante evaluation detailing the development of the RDP;
- a SWOT analysis and an identification of needs;
- an intervention logic showing the interactions between priorities, focus areas and measures;
- an Indicator Plan including the output and result including indicators to be used for the establishment of quantified targets selected to address each focus area;
- an evaluation plan outlining the evaluation topics and activities to be carried out during the programming period.

DAFM has laid the basis for a counterfactual assessment of the impact of TAMS II using data gathered in the Teagasc National Farm Survey (NFS). The aim is to provide a lower level evaluation of TAMS, assessing scheme participants and non-participants in terms of relevant performance indicators. The National Farm Survey (NFS) is conducted by Teagasc on an annual basis and is a random, nationally representative sample, of over 1,000 farms. Each farm is assigned a weighting factor so that the results of the survey are representative of the national population of farms. For the analysis, individual TAMS *approvals* up to end 2016 were matched with the 2015 NFS data (the 2016 NFS data was not available when the analysis was conducted). TAMS approvals were used to establish the baseline position of TAMS, and non-TAMS participants captured in the NFS. Going forward, DAFM is proposing that the baseline position of TAMS and non-TAMS participants will be monitored

¹⁴ Public Spending Code- B-03

and compared to assess progress in contributing towards the relevant RDP focus areas (improving competitiveness, generational renewal, reduce emissions etc.).

Figure 5.1: Performance Indicators to be used for NFS Counterfactual Evaluation of TAMS II

Measurement Area	Indicator	Description
Competitiveness	Gross Output Per Annual Work Unit	Calculated as net sales, plus net inventory change, plus grant receipts, divided by labour hours worked.
	Gross Output per Hectare of utilised agricultural area	Calculated as net sales, plus net inventory change, plus grant receipts, divided by hectares of agricultural land employed.
	Family Farm Income	Gross output minus total net expenses.
Generational Renewal	High Age Profile	Ratio of farmers over 60 with no one below 45 in household to others.
Nutrient Management	Nitrogen Balance	Nitrogen input into farm (fertilizers/feed/livestock) minus nitrogen output (milk/crops/ livestock sold)
Emissions	Greenhouse Gas Emissions	IPCC measure of emissions which estimates emissions of all farm activity.

Source; DAFM

While preparation for a counterfactual assessment of TAMS is a positive development, consideration should be given to the overall methodology employed to robustly assess the scheme. A number of issues are of importance here, some of which have been pointed out by the DAFM, including an issue concerning the self-selection of participants into the sample being assessed, the use of controls to ensure robust comparison between TAMS and non-TAMS recipients, the capacity and usefulness of some of the listed performance indicators.

The purpose of a counterfactual evaluation is to establish what would have happened in the absence of a scheme. This can be done by comparing observations from, and outcomes for, scheme participants against non-scheme participants to evaluate the scheme impact. In this case, where participants of a voluntary scheme are being compared to non-participants, the issue of *self-selection* may arise as farmers who apply for investment programmes could be qualitatively different from farmers who do not. For example, TAMS applicants could be more ambitious and growth orientated than non-applicants even in the absence of the scheme. Therefore the difference in the comparison between the two groups will be both the effectiveness of the scheme, and any intrinsic difference between the two cohorts. Similar issues may be reinforced by the application criteria for the schemes. As TAMS is targeted, farmers who are approved for schemes are likely to possess certain attributes such as farm size, farming type and the age of the farmer. Finally, as farms are in receipt of a variety of different support mechanisms through DAFM which may have overlapping objectives, specifically analysing the impact of TAMS would have to take due account of this. As such, consideration could be given as to how data on farm support schemes in general could be captured in addition to the specifics of

TAMS. In this regard, DAFM intend to proceed with the identification of appropriate control groups in order to allow purposeful evaluation.

Additionally, further consideration could be given to the capacity of the proposed counterfactual performance indicators in evaluating the contribution of the schemes to promoting specific objectives. For example, illustrating the effectiveness of the scheme in promoting generational renewal is challenging. The proposed indicator of the ratio of farmers over 60 with no one below 45 in household, may not be a sufficient indicator of generational renewal in that it would not indicate the effectiveness of the scheme in drawing new young farmers into the market, or discouraging them from exiting. As such, isolating the impact of TAMS on outcomes for farmers is a methodologically challenging task. In developing the counterfactual analysis due consideration should be given to the variety of issues outlined here.

6. Policy Considerations

6.1 Brexit

The economic and trade implications of Brexit will impact the Irish agricultural sector. The severity of these effects will depend on European-UK negotiations and the final form that Brexit takes. The UK is a major export market for Irish agriculture, and *Food and Live Animals* sector is one of the most exposed to the negative effects of Brexit¹⁵. Of note here are the relevant results from the Survey of TAMS II Approvals recently carried out by the DAFM. When approved farmers were asked why they hadn't yet proceeded with the investment, 16% cited "less optimistic about the future, (e.g. due to Brexit)"; the largest response to the question was the impact of a fall in commodity prices at 28%. Also of note is that 12% of young farmers surveyed and only 5% of those in the YFCIS cited lower optimism as a reason they had not yet invested – perhaps indicating that young farmers are more optimistic and willing to invest. According to the results of the Bank of Ireland Agri Pulse¹⁶ (May 2017) younger farmers tend to be more positive while dairy farms are the most optimistic of the sectors.

6.2 Product Prices

As the results of the phone survey conducted on behalf of DAFM discussed in section 2 indicated, the primary reason for approved farmers failing to draw down through the scheme has been "a fall in income e.g. due to a change in the price of agricultural commodities". As illustrated in table 6.2, over the last five years the supply for most agricultural products has outweighed demand internationally, leading to falls in the price of milk, beef and grain. More recently, the fall in the price of Sterling due to Brexit uncertainty also impacted present demand in the Irish case. In terms of how this may effect TAMS II investment going forward, price projections

¹⁵ UK EU Exit – An Exposure Analysis of Sectors of the Irish Economy. October 2016, Department of Finance. Donal Smith, Mike Fahy, Brian Corcoran and Brendan O'Connor.

¹⁶ [Bank of Ireland Agri Pulse](#)

estimate that the different agricultural sectors are likely to fare differently, indicating that investment may proceed unevenly across the different schemes. The price of milk is expected to revive due to a slowdown in international production, whereas tillage price growth may continue to be limited by the build-up in international global grain stocks.¹⁷

Table 6.2: Agricultural Input and Output Price Indices (Base 2010 = 100) by Agricultural Product and Year

	2012	2013	2014	2015	2016	
Agricultural output price index	121.13	131.64	120.66	116	110.35	-8.9%
Crop output	129.3	137.58	106.52	107.77	111.54	-13.7%
Cattle	135.9	138.79	125.89	139.09	129.75	-4.5%
Pigs	121.33	127.43	121.79	111.37	114.47	-5.7%
Sheep	104.13	104.78	107.41	108.68	109.01	4.7%
Poultry	114.18	116.35	114.04	112.18	112.15	-1.8%
Milk	104.37	127.31	121.53	94.87	87.22	-16.4%

Source: CSO

7. Conclusion

The following conclusions can be drawn from the foregoing analysis of TAMS II;

- Although at an early stage, TAMS II expenditure is significantly below its budgetary allocation. Due to a number of factors, there is uncertainty surrounding the level of funding that the scheme requires and the periods in which expenditure will occur. These factors include the demand led nature of the scheme, the sequencing of approvals and payments and the drawdown rates of applicants which may be impacted by issues such as commodity prices and overall investment and finance levels.
- Based on the approval pattern that has emerged at this early stage of the scheme it is mostly young farmers, milk farms, larger farms and farms in the South-East who have benefited from the scheme as of 18 September 2017. This pattern is the function of a number of factors including the design and objectives of the scheme and the overall structure of the agricultural sector.
- Given the interlinkages with the Rural Development Programme evaluation of TAMS II, or other schemes, in isolation is methodologically challenging. The basis for a specific evaluation of TAMS II through the Teagasc National Farm Survey has been established by the DAFM. This is a welcome development and this paper highlights a number of areas for further consideration in terms of the overall approach to evaluation.

Quality Assurance Process

This analysis was initially completed as part of the 2017 Spending Review and was subsequently updated in September 2017. In the development of the report, the author engaged with the Spending Review Working Group and the Department of Agriculture, Food and the Marine.

¹⁷ Teagasc – “Mixed Outlook for 2017”. November 2016.

Appendix

Appendix Figure i: Focus Areas of the Common Agricultural Policy

(Blue Shading indicates pertinence to TAMS II)

Code		CAP/RDP Focus Areas
1	1A	Fostering innovation, cooperation, and the development of the knowledge base in rural areas.
2	1B	Strengthening the links between agriculture, food production and forestry and research and innovation, including for the purpose of improved environmental management and performance.
3	1C	Fostering lifelong learning and vocational training in the agricultural and forestry sectors.
4	2A	Improving the economic performance of all farms and facilitating farm restructuring and modernisation, notably with a view to increasing market participation and orientation as well as agricultural diversification.
5	2B	Facilitating the entry of adequately skilled farmers into the agricultural sector and, in particular, generational renewal.
6	3A	Improving competitiveness of primary producers by better integrating them into the agri-food chain through quality schemes, adding value to agricultural products, promotion in local markets and short supply circuits, producer groups and inter-branch organisations.
7	3B	Supporting farm risk prevention and management.
8	4A	Restoring, preserving and enhancing biodiversity, including in Natura 2000 areas, and in areas facing natural or other specific constraints and high nature value farming, as well as the state of European landscapes.
9	4B	Improving water management, including fertiliser and pesticide management.
10	4C	Preventing soil erosion and improving soil management.
11	5A	Increasing efficiency in water use by agriculture.
12	5B	Increasing efficiency in energy use in agriculture and food processing.
13	5C	Facilitating the supply and use of renewable sources of energy, of by products, wastes, residues and other non-food raw material for the purposes of the bio-economy.
14	5D	Reducing green-house gas and ammonia emissions from agriculture.
15	5E	Fostering carbon conservation and sequestration in agriculture and forestry.
16	6A	Facilitating diversification, creation and development of small enterprises, as well as job creation.
17	6B	Fostering local development in rural areas.
18	6C	Enhancing the accessibility, use and quality of information and communication technologies (ICT) in rural areas

**Appendix Figure ii:
Mandatory Impact Indicators for EU Common Monitoring and Evaluation Framework**

Indicator No.	Indicator Name
I.01	Agricultural entrepreneurial income
I.02	Agricultural factor income
I.03	Total factor productivity in agriculture
I.04	EU commodity price variability
I.05	Consumer price evolution of food products
I.06	Agricultural trade balance
I.07	Emissions from agriculture
I.08	Farmland bird index
I.09	High nature value (HNV) farming
I.10	Water abstraction in agriculture
I.11	Water quality
I.12	Soil organic matter in arable land
I.13	Soil erosion by water
I.14	Rural employment rate
I.15	Degree of rural poverty
I.16	Rural GDP per capita

**Appendix Figure iii:
Performance Indicators used for monitoring of TAMS II by DAFM**

1	Total Public Expenditure
2	Total Investment
3	No. of holdings supported broken down by age ($\leq 40/40+$), gender & non-individuals
4	No. of livestock units supported
5	Type of agricultural holding (e.g. crops, dairy, livestock, mixed etc.)
6	Size (hectares) of holding supported
7	% of holdings supported for investment in restructuring/modernisation
8	% of holdings supported for business plan/investments for young farmers
9	Total investment in energy efficiency
10	Change in agri output / AWU
11	Increase in efficient energy usage in agriculture/food processing in supported projects.
12	Reduced emissions of methane & nitrous oxide.
13	Reduced ammonia emissions

Appendix Figure iv: Data from Teagasc's National Farm Survey, 2016

Table iv.1 Average Age of Farm Holder and Average Farm Size by Farm Type

	Dairying	Cattle Rearing	Cattle Other	Sheep	Tillage	Mixed Livestock	All
Average Age of Holder	50.6	54.8	56.8	58.4	58.4	55.2	55.6
U.A.A	56.2	35.6	36.9	51.2	67.5	74.7	45.9

Table iv.2 Age of Farm Holder and Average Farm Size by Region

	Border	Mid- East	Midlands	South- West	South- East	Mid- West	West
Age of Holder	54.2	55.6	59.5	54.6	53.6	58.4	53.5
U.A.A	36.8	55.5	47.2	50.9	57.9	47.7	35.7

Table iv.3 Age of Farm Holder by Farm Size

	2-<10	10- <20	20-<30	30-<50	50-<100	>=100	All
Age of Holder	63.9	55.1	56.4	55.7	55.6	53.8	55.6

Appendix Figure v:

Questions for the Phone Survey of Farmers who have not yet carried out their approved investment

1. Do you still intend to proceed with all investments under [insert TAMS measure] that you have been approved for?
 - a) I plan to complete all of the investments with grant aid (proceed to question 6)
 - b) I plan to complete some of the investments (proceed to question 2)
 - c) I plan to complete none of the investments (proceed to question 3)

If the participant answered b) to question 1

2.
 - a) What investment items will you complete? (mark as appropriate from information provided by DAFM)
 - b) What investment items will you not complete? (mark as appropriate from information provided by DAFM)

If the participant answered c) to question 1 and b) to question 2

3. Do you plan to proceed with the investment without the grant aid?
 - a) Yes (end of survey)
 - b) No (proceed to question 4)
4. Why do you NOT intend to proceed with the investment? (tick as appropriate and rank if multiple choices selected)
 - a) Could not get matching funds
 - b) Cost of matching funds (i.e. bank's interest rate too high)
 - c) Change to the cost of the investment
 - d) A fall in income (e.g. due to a change in the price of agricultural commodities?)
 - e) Less optimistic about the future (e.g. due to Brexit)
 - f) Personal circumstance have changed (e.g. family)
 - g) The project was too big to undertake
 - h) Other factors, such as_____.

5. Would you consider reapplying for TAMS support to complete this investment in the future?

- a) Yes
- b) No

End of survey for those that will not complete their investments – thank the participant.

If the participant answered a) or b) to question 1

6. You have until [expiry date] remaining in the approval period for the investment [insert TAMS investment items / Q2]. When do you intend to complete/purchase the last of the investments you are completing?

- a) within 6 months
- b) within 1 year
- c) within 2 years (if applicable)
- d) within 3 year (if applicable)

7. Thinking of the investments you intend to complete, why has your planned investment under TAMS not been carried out to date? (tick as appropriate and rank if multiple choices selected)

- a) Could not get matching funds from the bank/financial institution.
- b) Cost of matching funds (i.e. bank's interest rate too high)
- c) Change to the cost of the investment
- d) A fall in income (e.g. due to a change in the price of agricultural commodities?)
- e) Less optimistic about the future (e.g. due to Brexit)
- f) Personal circumstance have changed (e.g. family)
- g) Too busy
- h) Other - please specify _____

8. Would you undertake the same level of investment if no such grant support was provided under TAMS?

- a) Yes
- b) No

9. Thinking of these investments, how will/were the matching funds needed for the investment under this TAMS application be attained?

- a) Borrowed additional money from a bank/financial institution
- b) Family Loan
- c) Own savings
- d) Sale of assets
- e) Other - please specify _____

If the farmer selects multiple options, ask them for the percentage split (e.g. 50% from savings and 50% borrowed).

10. Why did you submit an application under TAMS? (tick as appropriate and rank if multiple choices selected)

- a) to improve on farm competitiveness,
- b) to address environmental issues,
- c) to increase on farm efficiency,
- d) to improve animal health and welfare
- e) to improve farmer health and safety
- f) Other - please specify _____

11. Are there areas of investment which are of interest to you, but which have not been targeted under existing schemes?

Appendix Figure vi: List of Acronyms Used in the Text

Acronym	Full Name
CAP	Common Agricultural Policy
DAFM	Department of Agriculture Food and the Marine
EAFRD	European Agricultural Fund for Rural Development
GDP	Gross Domestic Product
RDP	Rural Development Plan
TAMS	Targeted Agricultural Modernisation Schemes

Appendix Figure vii: Explanation of Environmental Indicators featured in NFS Counterfactual

The Nitrogen balance per hectare farmed is calculated using a nutrient accounting approach based where nitrogen exports from the farm are subtracted from nitrogen imports to the farm. Nitrogen exports comprise of the Nitrogen component of milk, crops, wool and livestock sold (including livestock for slaughter) from the farm. Nitrogen imports are composed of fertilisers applied, feeds purchased and livestock brought onto the farm.

The Nitrogen balance is used as an indicator of the potential magnitude of nitrogen surplus which may result in nutrient losses to water bodies. It also takes account of management practices most directly under the farmers control and is used to assess agronomic efficiency as well as the environmental sustainability of a farm.

Proper storage and management of slurry in particular can allow for its application on the land as a substitution for chemical fertilizers. Treacy et al. 2008 examined the farm-gate Nitrogen balances on 21 intensive dairy farms in the south west of Ireland over a 4 year period and found that the decline of the mean annual farm-gate Nitrogen surplus between 2003 and 2006 can be attributed largely to decreases in the quantities of fertilizer N. This reduction was made possible through good slurry management and by increasing the proportion of slurry applied during the spring. Investments under the Farm Nutrient Storage strand within TAMS II such as manure pits and concrete tanks will contribute to lowering the nitrogen surplus on these farms. This will also in turn lead to lower Greenhouse Gas Emissions.

Greenhouse Gas Emissions (GHG) emissions from agriculture are calculated using the Intergovernmental Panel on Climate Change (IPCC) coefficients and conventions. This approach estimates emissions associated with agricultural production activity within the farm gate. Agricultural emissions categories include methane (CH₄) emissions from enteric fermentation by ruminant livestock, methane and nitrous oxide (N₂O) emissions from the production and storage of livestock manures; and nitrous oxide emissions resulting from the application of manures and synthetic fertilisers to agricultural soils.

Investment items available under the Low Emission Slurry Spreading Scheme (LESS) and the Farm Nutrient Storage strand aim to support more efficient use of nutrients, resulting in lower use of artificial fertiliser and in turn reduced run-off from the land leading to improved water quality and lower emissions. In addition the Green Low-carbon Agri-environment Scheme (GLAS) under Measure 10 of Ireland's RDP provides support to farmers for low emission slurry spreading with the condition that LESS equipment is used.