

18. THE IMPACT OF DECOUPLED PAYMENTS ON OFF-FARM LABOUR SUPPLY: EVIDENCE FROM IRELAND AND ITALY

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This chapter examines the effect of the decoupling of farm direct payments on the off-farm labour supply decisions of farmers in Ireland and Italy. The authors use panel data from the Italian Farm Business Survey (REA) and the Irish Teagasc National Farm Survey database covering the period from 2002 to 2009 to model these decisions. The model is the neo-classical agricultural household model described by Donnellan & Hennessy (2012) in Working Paper No. 31 of the Factor Markets project. Both models are developed at a national level. The model holds that the impact of decoupling on off-farm labour supply is dependent upon two competing forces i.e. the relative wage effect and the wealth effect. The decline in the farm wage relative to the off-farm wage makes off-farm work more attractive thus producing the relative wage effect. At the same time, the new decoupled direct payment provides a new non-labour source of income thereby generating a wealth effect. This may in turn have suppressed or eliminated the likelihood of increased off-farm labour supply for some farmers. Our hypothesis is that decoupling led to an increase in off-farm labour activity which would imply that the relative wage

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has dominated the wealth effect. We draw from the literature on female labour supply and use a sample selection corrected ordinary least squares model to examine both the decisions of off farm work participation and the decisions regarding the amount of time spent working off-farm. The results indicate that decoupling has not had a significant impact on off-farm labour supply in the case of Ireland but there appears to be a significantly negative relationship in the Italian case.

1. Introduction

Off-farm employment supports the living standards of a large proportion of farm households in Ireland and Italy, in part due to the small-scale nature of many family farm operations. For example, the smallest one quarter of farms in Ireland account for just about 3% of all gross agricultural output, and for about 10% of all gross agricultural output in the case of Italy (Moreddu, 2011). Many farm households therefore cannot rely upon farming as their only income source. This chapter summarises the findings from our work on the determinants of off-farm labour supply among farmers in both countries. We highlight in particular the potential impact of the decoupling of farm direct payments from labour supply decisions, both in terms of the participation decision and the number of hours supplied.

The potential impact of decoupling is highlighted as it is a relatively recent policy development with the potential to have radically altered the incentives for farmers towards the supply of off-farm labour. The 2005 reform of the Common Agricultural Policy ensured that farmers received support independent of their on-farm production decisions, as long as they complied with the “statutory management requirements” and maintained their land in “good agricultural and environmental condition”. According to neo-classical economic theory, this reform had the potential to either increase or decrease off-farm employment depending upon the relative strength of two opposing forces, i.e. ‘the wealth effect’ and ‘the substitution effect’. Decoupling provided a wealth effect via the introduction of a new non-labour source of income which incentivised farmers to relax their supply of off-farm work and devote more time to leisure. On the other hand, the introduction of decoupling made the coupled farm wage less rewarding relative to the prevailing off-farm wage. This substitution effect incentivised farmers to increase their off-farm employment.

This chapter uses an agricultural household modelling framework to consider the substitution and wealth effects of decoupled payments and the implications for the farm operators' off-farm labour participation and supply decisions. The chapter provides an ex post assessment, in contrast to the ex ante analysis of Irish farms by Hennessy & Rehman (2008), which relied upon projections at the macro level. The arrival of the economic recession in 2008 substantially changed the macroeconomic picture in both Ireland and Italy, and it would be interesting to identify whether or not the introduction of decoupled payments achieved a significant impact against such a background. Ex post analysis of the effect of decoupling on off-farm employment in Italy has been carried out by Corsi & Salvioni (2012) with respect to a subset of crop farmers. A wider sample of farms is included in this study, stretching over a longer time period, and we have a greater consideration for many small farmers where, at least in theory, the off-farm income source should be more relevant.⁴⁴ In addition, we have modelled the determination of off-farm labour hours and we provide a unique ex post cross-country analysis regarding the impact of decoupling on off-farm employment.

In the next section, we provide a brief summary of the policy background. This is followed by the data section with a separate description of the data sources for each country. The next section discusses the results and this is followed finally by the conclusion.

2. Policy background

Ireland and Italy are among ten EU member states that decoupled EU direct payments from agricultural production in 2005 under the introduction of the Single Payment Scheme (SPS). A further seven member states followed this path in subsequent years while ten new member states embarked upon the Single Area Payment Scheme (SAPS). Ireland, in common with Luxembourg, Malta and the UK (excluding Scotland), decoupled all direct payments from production while Italy retained some coupling payments for certain crop production, such as rice and tobacco. These reforms formed part of the Luxembourg Agreement on the reform of the CAP announced in September 2003.

⁴⁴ For example, in the Corsi & Salvioni sample the average farm size is equal to 53.37 ha of utilised agricultural area (UAA). Differently in our sample average size is 24.2 ha and 36.7 ha for the Italian and Irish sample, respectively.

On the introduction of the SPS, each member state had the option of choosing between three different implementation models: the historical model, the regional model, and the hybrid model. Ireland and Italy were among the majority of countries that chose to implement the historical model of payments. This meant that the allocation of entitlements became based on a historical reference period from 2000 to 2002.

The adoption of the historical model limited the extent to which the reforms could impact directly on the distribution of farm income between farm households. In contrast to Ireland and Italy, the new member states (excluding Malta and Slovenia) implemented the regional model which set a uniform payment per hectare. A small number of countries (Denmark, England, Finland, Germany, Luxemburg, Northern Ireland and Sweden) embarked upon a hybrid version of the two models.

Access to the SPS came with certain conditions for farmers. In order to access the scheme, farmers must have received direct payments during the reference period 2000-02 and the reference amount is based upon the three-year average of the total direct payments received in this reference period. Farmers were required to maintain the land 'in good agricultural and environmental condition' and furthermore that land under permanent pasture at the date of the area aid application must be maintained under permanent pasture. O'Neill & Hanrahan (2012) explained that these requirements may have incentivised some farmers to keep land in agricultural use and that without such requirements, the land would be left idle or converted to non-agricultural use. These conditions may in turn have some implications for the decision to enter off-farm employment.

3. Data

In this section, we briefly describe the data sources used for the analysis in both countries. Loughrey et al. (2013) describes these data sources in more detail. The Irish analysis utilises the Teagasc National Farm Survey data, which is essentially the Irish Farm Accountancy Data Network (FADN) database but containing richer data on off-farm labour supply. The attrition rate is relatively low and a sizeable proportion of the farms are contained in the dataset for all years concerned. New farmers are introduced during the period to maintain a representative sample and the sample size is usually kept to between 1,000 and 1,100 farms.

The Italian analysis utilises the data from the Farm Business Survey (REA) carried out by the Italian Institute of Statistics (ISTAT). The database surveys yearly a sample of agricultural holdings representative of Italian

agriculture, stratified by region, farm type and economic size of holdings. Besides a detailed set of variables on farm structure, the database includes household composition variables as well as extra-farm source of income variables. The study covers an average of 3,573 farms per year, in a balanced panel that includes only farms surveyed for the entire period analysed.

The data for both countries covers the period from 2002 to 2009 and therefore includes the three years prior to the decoupling reform in 2005 and the four years immediately after the reform. We use approximately the same list of variables from both datasets and the mean values for these variables are presented in Table 18.1.⁴⁵

Table 18.1 Mean value statistics for Italian and Irish data

Main variables	ITALY		IRELAND	
	Off-Farm employed	Full sample	Off-farm employed	Full sample
Off-farm job (Head)		23.0		36.3
Off-farm hours per year	466.71	113.19	1572.35	570.65
Independent Variables				
Age	53.40	55.78	48.98	54.35
Sex (= 1 male; 2 female)	1.29	1.34	1.03	1.05
Specialist dairy	0.0927	0.1388	0.0540	0.1571
UAA (ha)	15.11	24.18	27.47	36.72
Spouse (= 1 if work off-farm)	0.1146	0.0656	0.4190	0.3167
Married (= 1 if married)	0.3709	0.4114	0.7449	0.6730
Number of young in the family farm	0.0801	0.0465	0.8318	0.6278
Number of family members living in the farm	1.8457	1.9466	3.6214	3.2889
Number of family members working in the farm	0.2409	0.3482	N/A	N/A
Hired (= 1 if presence of hired workers)	0.2099	0.2617	0.1097	0.1827
Number of bovine on UAA	0.7564	0.8798	1.1429	1.3093

⁴⁵ In the Italian sample, household characteristics such as the 'number of family members living in the farm' and the 'number of young in the family farm', could be seriously underestimated, as the available data mainly include family members working on- or off-farm.

Decoupled payments	2,529	5,441	7,237	9,059
Coupled income	2,517	3,936	2,636	7,780
Other subsidies (investment aids, organic payments, etc.)	442	630	2,676	2,764
Average number of farms each year	825	3,573	330	1,184

Sources: see text.

The mean values provided include both the dependent and independent variables from our analysis. The values are presented separately for the entire sample and for the sub-sample of farm operators engaged in off-farm employment. In terms of the dependent variables, it is clear that off-farm employment is much more common among Irish farm operators than among Italian operators. Among those with off-farm employment, the Irish operators participate in over three times the amount of off-farm labour relative to the Italian farm operators.

Among the independent variables, the average age is very similar for farm operators in both countries. Italian farm operators have an average age of 55.78 years, compared to 54.35 years for Irish farm operators. The average age of Irish operators with off-farm employment is approximately four years younger than for the Irish sample as a whole. Italian farm operators are much more likely to be female than their Irish counterparts. The proportion of farms classified as specialist in dairy is relatively close in both datasets. We find that Irish farms have much larger farm incomes both in terms of coupled and decoupled incomes along with larger farms. In addition, Irish farm operators receive much greater amounts in the form of other subsidies.

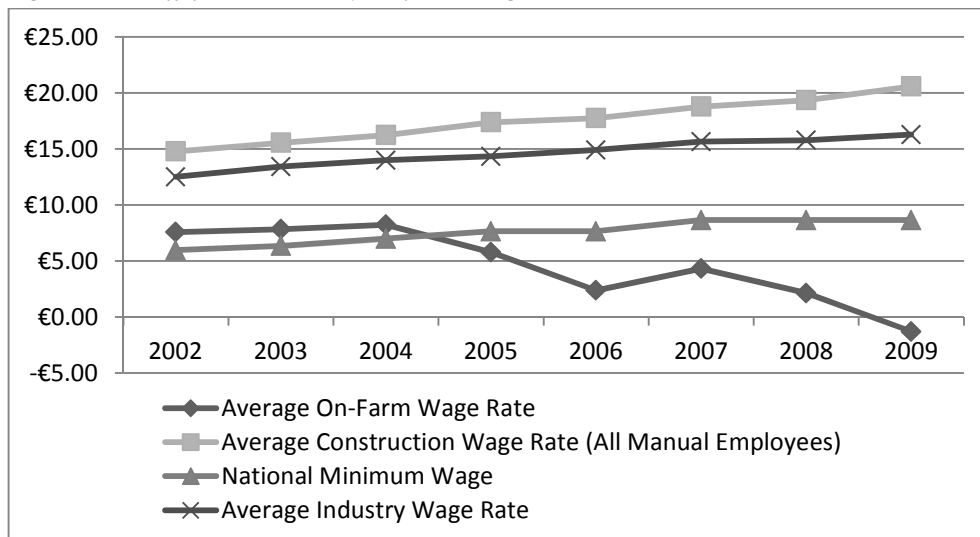
In terms of the remaining farm-level variables, it appears that the presence of hired workers is more common in the case of Italian farms, with 26.2% of farms hiring labour compared to 18.3% in the case of Irish farms. The number of bovine units per UAA hectare is much higher on Irish farms. Average farm size is much greater in Ireland. This finding is supported by Moreddu (2011), who provides results from the 2007 farm structure survey carried out in both countries. The farm structure survey includes farms of all sizes whereas the FADN database excludes farms of less than 4 European Size Units (ESU) in the case of Italian farms and less than 2 ESU in the case of Irish farms.

In terms of household variables, we can see that the average household size is much smaller among the Italian farms than the Irish farms. While Irish farms have on average higher income, the Irish farm

household must support on average at least one more person. There are also deep differences in the proportion of farms where a spouse is engaged in off-farm employment. This proportion lies at just 6.6% for the Italian farms compared to 31.7% for the Irish farms. There appears to be some correlation between off-farm employment of the operator and the spouse in both countries. In both cases, the proportion of farms with a spouse employed off-farm is greater among the sub-sample of farms where the operator is employed off-farm than for the sample as a whole. The Irish data does not provide for a variable regarding the number of other family members working on the farm.

Before proceeding to the results section, we first take a look at some of the trends in farm and off-farm wage rates in Ireland both before and after the decoupling of direct payments in 2005. The differences in wage rates between farm and non-farm labour can reflect the size of the incentives faced by farm operators in the allocation of labour. As explained previously, an increase in the off-farm wage rate relative to the farm wage incentivises farm operators to increase their off-farm employment.

Figure 18.1 Off-farm and coupled farm wage rates in Ireland



Source: Teagasc National Farm Survey and CSO (2013).

It is evident from Figure 18.1 that the gap between off-farm wages and on-farm wages grew substantially during the period 2002 to 2009. We highlight both the average industrial wage and the average construction wage, as construction provided many farm operators with employment

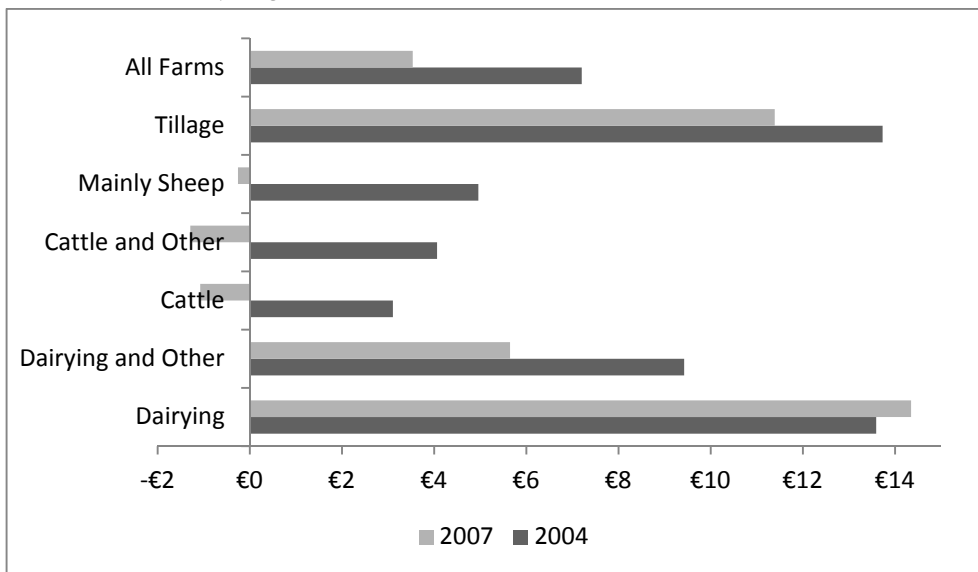
during the economic boom. Wage rates in construction and industry grew continuously during the period, while the coupled farm wage rate declined overall. Some of this decline was concentrated around the time of decoupling in 2005, with the average on-farm wage rate falling from approximately eight euros per hour in 2004 to less than six euros in 2005.

Irish farming experienced some difficult years post-decoupling, with 2009 being a particularly difficult year as the average coupled on-farm wage entered negative territory. The coupled farm wage recovered to approximately five euros per hour in the following two years but remains two or three euros per hour less than the level pre-decoupling.

We can conclude from the above that decoupling produced a shift in relative wages but much of the overall change in relative wages can be attributed to the improvement in off-farm wage rates during the period. The average industry wage was almost double that of the average coupled farm wage rate prior to decoupling. Many farm operators chose, for various reasons, to not enter into off-farm employment despite the incentive of higher off-farm wages in the pre-decoupling era. We should perhaps therefore not expect the decoupling-induced shift in relative wages to cause large increases in off-farm employment participation in the Irish case.

The average coupled farm wage in Ireland varies according to the farm system. In addition, the decoupling-induced change in relative wages appears to have varied according to the system. From Figure 18.2, it appears that the shift in relative wages has been greatest for those farms which can be categorised within either the 'drystock cattle' or 'mainly sheep' categories. The relative wage effect is therefore most pronounced for farms in these systems.

Figure 18.2 Coupled farm wage rates by system in Ireland [post- and pre-decoupling]



Source: Teagasc National Farm Survey.

4. Results

In this section, we present the econometric results for the off-farm participation probit model and the hours of off-farm work model. More detailed results including the size of the coefficients are provided for both countries in Loughrey et al. (2013). For the Irish results, we strongly recommend Donnellan et al. (2013) as this particular paper provides analysis suggesting that the significance of the relationship between decoupled payments and off-farm work participation is quite sensitive to the choice of modelled variables and in addition the paper examines the relationship between off-farm employment and farm exit within an Irish context. In terms of the impact of decoupling on off-farm work participation, it appears from Table 18.2 that there was a significant negative impact in Italy but no significant impact in Ireland. We can imply from this that the wealth effect has dominated the relative wage effect in Italy and that off-farm employment participation has responded negatively as a consequence.

Table 18.2 Results for participation analysis

Independent Variable	Ireland	Italy
Age	Positive***	Positive***
Age squared	Negative***	Negative***
Sex	Negative	Negative***
Specialist dairy	Negative***	Negative***
UAA (ha)	Negative**	Negative***
Spouse working off-farm	Positive	Positive***
Married	Positive***	Negative***
Number of young in HH	Negative***	Negative
Household size	Positive***	Positive***
Number of family members working on the farm	N/A	Negative***
Hired workers (1,0)	Negative	Negative***
Number of bovine Per UAA	Negative***	Negative**
Decoupled payments (in €10,000s)	Negative	Negative**

Level of Significance: *p<0.10, **p<0.05, ***p<0.01

The differentiated impact of decoupled income on off-farm work participation in the two countries is interesting. The difference could perhaps lie in the combined effect of the level of average payments and off-farm wages in the two countries. Indeed, in the Italian sample, the corresponding average amount of decoupled payments per farm is only 59% of the Irish sample, a fraction that goes down to 35% when only the farms with off-farm work are considered.⁴⁶ From this perspective, it is not simple to justify the above results. However, in several southern Italian South, the off-farm wage (unemployment rate) is typically lower (higher) than in Ireland, a consideration that can at least partially recompose the above evidence.

For both countries, the presence of a specialist dairy farm reduces the likelihood of participation. We find that age is positively associated with participation in both countries, but in a non-linear fashion as age squared is negative and significant. The off-farm employment participation of the

⁴⁶ Note that differences in farm size can only partially explain these numbers, suggesting that the reason could be attributable to differences in the types of farm activities.

spouse is found to have no significant impact upon the participation decision in Ireland, but a significant and positive one in Italy. Marriage status has a totally different effect in the two samples, pointing to a significant positive effect in Ireland but to a significant negative effect in Italy. The number of young in the household is a negative contributor towards off-farm employment participation, although it is statistically significant only in Ireland. Finally, household size and the presence of hired workers are positively and negatively associated, respectively, with off-farm employment participation, but the latter is statistically significant only for the Italian sample.

Table 18.3 Results for hours equation

Independent variables	Ireland	Italy
Age	Positive***	Positive***
Age squared	Negative***	Negative***
Specialist dairy	Negative***	Positive
UAA (ha)	Negative*	Positive
Spouse working off-farm	Negative***	Positive***
Married	Positive	Negative**
Number of young	Negative*	Negative*
Number of family members living in the farm	Positive	Positive**
Number of family members working in the farm		Negative*
Hired workers (1,0)	Negative	Positive
Number of bovine on UAA	Negative**	Negative***
Decoupled payments (x 10,000€)	Negative	Negative***
Mills ratio	Positive**	Positive

Level of Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

In the hours equation, and coherently with the Probit result, we find for Italy that decoupled payments have had a significant negative impact on the number of hours supplied off-farm. Decoupled payments are therefore found to have had a significant negative effect on both participation and hours supplied off-farm in Italy. In a neo-classical framework, this suggests a strong wealth effect. No significant impact is found in the Irish case, but the negative sign is also apparent.

As in the case of the participation equation, the age variable is significantly positive and non-linear for both countries. Farm size has a negative and significant impact on hours supplied among Irish farmers but

no such relationship appears from the Italian results. The results also show that being a specialist dairy farmer has a significantly negative impact upon hours among Irish farmers but not among Italian farmers, a result that could be attributed to the way we are forced to estimate the dairy specialisation in the Italian sample.

The off-farm work participation of the spouse appears to have a very strong positive effect in Italy, which is perhaps unexpected. The off-farm employment of the spouse has a significant negative effect in Ireland. This would imply some kind of trade-off taking place between the off-farm employment of the spouse and the number of off-farm hours supplied by the farm operator. We find that a being married has a significantly negative effect upon off-farm employment in the Italian data while in the Irish data there is a significant relationship between off-farm employment participation and marriage.

The number of young in the household is a negative contributor towards off-farm employment in both samples, and the effect appears to have greater significance for participation than for hours. The intensity of livestock farming is unlikely to be among the stable covariates and it appears, as expected, to have a significantly negative impact upon hours supplied in both countries.

Finally, in the Irish case, the significance of the inverse Mills ratio in the second stage means that sample selection is present. Farm operators engaging in off-farm employment are therefore found to have unobserved characteristics that make them more likely to engage in off-farm employment relative to the group not participating in off-farm work. This result is quite different from the Italian sample, where instead the Mills ratio is never significant.

5. Conclusion

This chapter summarises our econometric analysis of the determinants of off-farm labour participation in Ireland and Italy with the aim of understanding the role played by decoupled payments in this important adjustment process. To this end, a neo-classical household model based on utility maximisation is used to model farm households' labour allocation decisions. Under this framework, the effect of decoupling on off-farm participation is the result of two contrasting effects, namely, a wage effect that should increase the off-farm labour participation, and a wealth effect that should reduce it. Thus, overall, which of the two effects will prevail is an empirical question that we addressed through an hours off-farm labour

supply equation and an off-farm participation equation, to take care of the possible unobserved selection effects.

Overall, many of the determinants of off-farm labour participation and off-farm labour supply suggested by the previous literature have the expected significant effect in both Ireland and Italy, although some notable exceptions are present. With regard to the main policy variable of interest, the results suggest that decoupled payments have a negative effect on the off-farm participation decision and on the hours supplied in the two samples, although this result is significantly different from zero only in the case of Italy. In light of the conceptual model framework, this result points to a wage effect that is dominated by the wealth effect.

The characteristics of farms at the top and bottom of the coupled income distribution can therefore differ between the countries. In addition, farmers in both countries are likely to be affected by different income risks relating to weather, disease and other natural forces. In Ireland, the off-farm job demands on average close to 30 hours of labour per week, whereas the average number of hours is much lower in Italy. Future refinement of the analysis calls for a deeper investigation of the differentiated factors that are at the root of the above findings.

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