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Labour adjustments in agriculture: evidence from Romania

This paper explores the slow pace of structural change which has characterised the post-transition period in Romania and sheds light on the dynamics of labour adjustments. A multinomial logit is employed to investigate the determinants of inter-sectoral labour movements in the period 2003-06. The high share of farm employment in Romania, mostly characterised by family workers and self-employed, suggests that agriculture serves as a buffer against unemployment. Whereas the main channel of farm labour outflows is closely related to retirement, movements to other sectoral employment are significantly hindered by the low levels of education. The findings are important from a policy point of view, suggesting the need for investments in human capital, specifically in education of the rural population with the purpose of enhancing the mobility of labour and facilitating a smooth transition across activities. At the same time, priority should be placed on rural development to encourage the diversification of the rural economy and the creation of alternative sources of income from non-agricultural activities.

Keywords: labour adjustments, inter-sectoral movements, agriculture, multinomial logit, Romania

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Introduction

The collapse of the communist system in 1989 and the transition from a centrally planned to a market economy has had a deep influence on the labour markets in Central and Eastern European countries (CEECs). In Romania, the land reform and the privatisation of non-land assets created more than 4 million individual farm households and small family farms which, in terms of the number of farms, became the predominant type of farming. Although many of these small-scale semi-subsistence farms are expected to disappear as a consequence of economic growth, in the last decade the process of structural change has been relatively slow.

One of the roles of agriculture in economic development is traditionally seen as releasing labour for the rest of the economy. This can provide the double benefit of supplying hard-working self-reliant workers for rapid economic growth in the non-agricultural sectors while at the same time spurring agriculture to improve its labour productivity and raise rural living standards. Romania seemed perfectly poised to offer these developments after the collapse of the centrally planned system. It had one of the largest agricultural sectors in the CEECs, and incipient manufacturing and service sectors which had great potential to be invigorated by joining the European Union (EU) single market. This seemed to offer an opportunity to see classic labour market interactions between agriculture and the rest of the economy.

Motivated by this opportunity, the objective of this paper is to identify the determinants of labour adjustments with respect to the agricultural sector which have characterised the post-transition period. In particular, the paper examines both supply and demand side characteristics which explain inter-sectoral movements of labour. The focus on Romania is deliberate and stems from the significant role of its agricultural sector in the national economy. One of the striking features is the pronounced share of employment in the agricultural sector. In 2010, agriculture accounted for 30 per cent of total employment with more than 2.7 million people engaged in the sector. The 2010 Farm Structure Survey (FSS) recorded 3,859 thousand agricultural holdings in Romania with 71 per cent of these holdings having 2 ha or less. A unique characteristic, even in comparison to other CEECs, is the unfavourable production structure: the heavy reliance of people on subsistence and semi-subsistence agriculture (more than 90 per cent of the total number of holdings use more than 50 per cent of the agricultural production for its own final consumption rather than sales to the market), and the very low labour productivity of farming, at less than 25 per cent of the EU average. Outmigration from agriculture has been very slow and this suggests that more attention should be given to the supply side of the labour market with emphasis on the causes of labour immobility (Lianos, 1971).

Allocation of labour in rural areas

The empirical investigation of inter-sectoral movements of labour relies upon the classic two-sector model of rural-urban migration developed by Todaro (1969) and Harris and Todaro (1970). This assumes that the migration decisions of individuals are based upon the expected income differential between the rural and the urban sector. Migration will occur if the expected income exceeds the migration costs, as well as the transaction costs, such as the search costs of finding employment, the inter-sectoral relocation costs and the costs of physical relocation. Therefore, the integration of rural factor markets in the general economy is important as it reduces the labour market constraints, facilitating the shift to other sectors. However, the information on the location and availability of jobs may not be perfect, so that imperfect and asymmetric information creates mobility costs (Sadoulet and de Janvry, 1995).

Moreover, the decision to migrate or not is also influenced by non-pecuniary benefits associated with the job attributes of a particular sector: working in agriculture may be associated with tradition and cultural reasons, or because farmers enjoy the autonomy of self-employment rather than working in a company (Bojnec and Dries, 2005), and this also creates labour immobility. Other non-monetary attributes refer to the residence where the individuals live, commuting time, transport facilities and other amenities (Zanni *et al.*, 2008). Furthermore, changes in policies, institutions and administrative regulations (such as price and trade liberalisation, privatisation, restructuring, etc.) also affect the opportunity cost of labour and therefore have an impact upon labour adjustments (Swinnen *et al.*, 2005).

The costs of switching jobs as well as the probability of finding another job depend on the individual human capital characteristics, such as age and education of the individuals, as well as on regional and economic conditions, such as the degree of urbanisation and local employment conditions. The human capital theory represents an important contribution to the labour reallocation literature, as it predicts that the younger and the more educated individuals are those more inclined to migrate. The young will be more mobile as they can reap the benefits over a longer period of time, and the better-educated have more transferrable skills and more access to information, and they face lower transaction costs in switching jobs and moving from one region to another. As supported by a large body of literature, education is one of the most important variables for entry in the non-farm economy: schooling, which is often used as a proxy for knowledge and skills, is positively and significantly associated with participation in rural non-agricultural wage employment (Huffman, 1980; Sumner, 1982; Kimhi, 1994; Corsi and Findeis, 2000; Goodwin and Holt, 2002; Juvančič and Erjavec, 2005; Benjamin and Kimhi, 2006), and decreases participation in agricultural activities (Lopez, 1984; Fall and Magnac, 2004; Rizov and Swinnen, 2004).

As human capital is a key factor for the quality, mobility and flexibility of labour, it is thus crucial for an efficient allocation of labour at both micro and sector level (Bojnec and Dries, 2005). Overall, inadequate human capital represents an important constraint for the reallocation of agricultural labour and for economic activities in rural areas in general (Rizov and Swinnen, 2004). For a comprehensive review of major studies and key issues on agriculture and rural labour markets see Tocco *et al.* (2012).

The remainder of the paper is structured as follows: the next section sets out the empirical specification, data and variables employed. This is followed by a discussion of the estimation results in the context of the previously published literature, and conclusions, including policy implications.

Methodology

Empirical specification

Labour adjustments in agriculture are modelled by an occupational choice model exploring the determinants of labour flows out of the agricultural sector. The methodology used follows Bojnec and Dries (2005). The analytical framework employed differentiates between labour movements from the agricultural sector to the industrial or services sector on the one hand, and into unemployment or out of the labour force on the other[1]. Hence, the categorical dependent variable can take three mutually exclusive unordered outcomes: agriculture, industry/services, non-employment. The model employed is a multinomial logit (Greene, 2003), which can be specified as:

$$Prob(Y_i = j) = \frac{e^{\beta'_j x_i}}{\sum_{k=0}^{m} e^{\beta'_k x_i}}, \; for \; j = 0, \ldots, m \tag{1}$$

The estimated equations provide a set of probabilities for the m occupational choices for a decision maker with characteristics x_i, i.e. to stay in the same occupation or to flow to one of the j alternatives. The model is unidentified since there are many parameter values that lead to the same probabilities: a convenient normalisation that solves the problem is to set $\beta_0 = 0$. The probabilities sum to one, which implies that only $m-1$ parameter vectors need to be estimated to determine the m probabilities. This means that the remaining coefficients β_j measure the change relative to the reference group $Y = 0$. Thus, the probabilities are:

$$Prob(Y_i = j) = \frac{e^{\beta'_j x_i}}{1 + \sum_{k=1}^{m} e^{\beta'_k x_i}}, \; for \; j = 0, \ldots, m$$

$$Prob(Y_i = 0) = \frac{1}{1 + \sum_{k=1}^{m} e^{\beta'_k x_i}} \tag{2}$$

Therefore, each outcome, or occupational choice (j), is compared with the base category ($Y = 0$) of individuals who do not change sector between two periods or in other words who are still engaged in agriculture in the second period[2]. Hence, the coefficients of the multinomial model are interpreted in comparison to the base category so that a positive coefficient means that, as the regressor increases, individuals are more likely to choose alternative j than alternative 0.

For simplicity, we will also report the results as odds ratios or relative-risk ratios (Cameron and Trivedi, 2009). The odds ratio of choosing alternative j rather than alternative 0 is given by:

$$\frac{Prob(Y_i = j)}{Prob(Y_i = 0)} = \exp(\beta'_j x_i) \tag{3}$$

so that e^{β_j} gives the proportionate change in the relative risk of choosing alternative j rather than alternative 0 when x_i changes by one unit. Thus, if the coefficient is positive, the odds ratio will be greater than 1, and if negative it will be less than 1.

Data and variables

The main data set is provided by the EU Labour Force Survey (EU-LFS). Since the household numbers are randomised it is not possible to track individuals across different waves. Nonetheless, the analysis exploits the presence of retrospective questions, as the interviewed individuals at each period (t) provide information in regards to their employment status one year prior to the survey (t-1). Therefore, the changes in labour outcomes for the same individuals across two consecutive years could be observed. The sample comprises pooled cross-sections of people employed in agriculture in t-1 for the period 2003-06 and consists of 71,862 individuals. The categorical dependent variable represents

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[1] In order to gain a better understanding of the importance of agriculture in Romania a second model has been estimated, focussing on the movements of labour into agriculture. Since our main interest is to examine the determinants of labour moving out of agriculture, the first model constitutes the core of this paper.

[2] One of the limitations of such methodology is that the sample of the population is non-random, i.e. those employed in agriculture in t-1. The modelling of a selection mechanism to control for the initial condition problem is beyond the scope of this study. It has been addressed in Tocco *et al.* (2013).

three mutually exclusive outcomes according to the main occupational choice in period t: employment in the agricultural sector $(=1)$, employment in the industrial or services sector $(=2)$, and non-employment, i.e. combining unemployment and inactivity into a single group $(=3)$[3]. Owing to data limitations the period of study is quite short for a dynamic analysis of structural change. However, the results still prove to be insightful when looking at the determinants of inter-sectoral labour movements.

The first set of independent variables relate to the personal characteristics of individuals. Dummies are used to capture the gender effect (female=1) and the marital status (married=1). As a proxy for the individual's stock of human capital the highest level of educational attainment is included: low education (educlow=1) if the individual has only received lower secondary education, medium education (educmedium=1) if the individual has received upper secondary education, and high education (educhigh=1) if the individual has received tertiary education. In order to disentangle the different effects of education and control for specific agricultural human capital a dummy for those who have received agricultural education (agriedu=1) is included.

The age variable is used to investigate the life-cycle decisions of individuals. The variable is not a continuous one and six different age bands have been created: 15-24, 25-34, 35-44, 45-54, 55-64, 65 and over. Individuals aged less than 15 are not of interest for the age variable, as they are not part of the labour force. The upper age limit is not restricted, since a large number of people engaged in agricultural activities have passed the retirement age. Lastly, a dummy for the presence of children under 15 in the household is included (children=1) as well as an interaction dummy for capturing the effect of children on the occupational choice decisions of women (female_children=1).

The second set of variables relate to the specific employment characteristics in t-1, classifying the individual according to the status in employment, namely whether the individual was self-employed with or without employees (selfempl=1), a family-worker (familywork=1) or an employee (employee=1) receiving any form of compensation, i.e. wages, salaries, payment in kind and so forth.

Additional available information concerns the region at the European NUTS 2 level where the individual was residing in the previous period. Further variables were incorporated from the EU New Cronos Database online to control for the labour market conditions at the regional level. These include the regional population density[4] (popdensity), expressed in inhabitants per km[2], and the region employment growth outside agriculture (emplgrowthnonagr). Following Dries and Swinnen (2002), a proxy for the reservation wage is included, measured by the ratio of the average wage per region over the national wage (regwagelag). Owing to potential endogeneity, as the outflow of agricultural labour affects the off-farm labour supply and thus may itself affect

the wages paid in the region, this variable is included by its lagged value. Lastly, year dummies for each of the pooled cross-section yr2004_5 and yr2005_6 are included and yr2003_4 is omitted as a base year. Some descriptive statistics of the variables employed are presented in Table 1.

Table 1: Descriptive statistics of a sample of 71,862 people engaged in agriculture in Romania at t-1 for the period 2003-06.

Variable	Range	Mean	Std. Dev.
Individual and family characteristics			
female	$0-1$	0.48	0.50
married	$0-1$	0.70	0.46
low education	$0-1$	0.61	0.49
medium education	$0-1$	0.38	0.48
high education	$0-1$	0.01	0.11
agricultural education	$0-1$	0.05	0.22
age 15-24	$0-1$	0.09	0.28
age 25-34	$0-1$	0.17	0.37
age 35-44	$0-1$	0.18	0.39
age 45-54	$0-1$	0.20	0.40
age 55-64	$0-1$	0.19	0.39
age 65-99	$0-1$	0.17	0.38
children	$0-1$	0.32	0.47
Job related characteristics			
self-employed	$0-1$	0.53	0.50
family worker	$0-1$	0.40	0.49
employee	$0-1$	0.07	0.25
Labour market conditions at regional level			
population density	$61-1,259$	97.67	90.35
wage ratio	$0.6-2.3$	0.82	0.18
employment growth	$-5.2-9.8$	1.97	4.47

Results and discussion

Probabilities and labour movements

The probabilities of labour flowing from the agricultural sector in period t-1 to other occupational choices (industry and services) and to non-employment (unemployment and inactivity) in time t are summarised in Table 2. During the years 2003-06, there was little mobility in agricultural labour from one period to the next. The low mobility of agricultural labour suggests that structural change has not been particularly significant during this period of analysis. In fact, only 2.3 per cent of agricultural labour moved to other sectors to seek other employment opportunities, equivalent to 1,653 people. The slow pace of the out farm migration of labour may suggest the presence of mobility constraints and structural impediments which have hindered a smooth adjustment across activities. A much larger outflow was associated with non-employment, representing 6.2 per cent of the sample. Thus, the main channel of farm exit is closely related to retirement.

Table 2: Predicted probabilities of labour choices of a sample of 71,862 people engaged in agriculture in Romania, 2003-06.

| Status in period t-1 | Status in period t | | |
	Stay	Other employment	Non-employment
Agriculture	65,743 (91.49)	1,653 (2.30)	4,466 (6.21)

Note: numbers in brackets represent percentages of the total sample

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[3]   The classification of the labour force status, i.e. whether the individual is employed, unemployed or inactive, follows the International Labour Organization guidelines.

[4]   Population density should ideally be measured at a more local level (municipality/district level) – the EU-LFS contains a variable for the degree of urbanisation for an area (a group of contiguous 'local areas') classified as densely populated area, intermediate area, thinly-populated area. Unfortunately this variable was not available for the Romania dataset.

Table 3: Labour movements from agriculture: importance of having a second job amongst the 67,396 employed people in Romania shown in Table 2.

Status in period *t*	Economic sector of second job		
	Agriculture	Industry and services	None
Agriculture	592 (0.90)	127 (0.19)	65,024 (98.91)
Industry and services	330 (19.96)	1 (0.06)	1,322 (79.98)

Note: numbers in brackets represent percentages of the total sample

Additionally, it is possible to investigate the extent to which, in period *t*, employed people have had a second job and the economic sector of this. Almost 20 per cent of those individuals who are estimated to have moved from agriculture to industry and services still worked in agriculture as a second job (Table 3). This implies that Romanian households were still very reliant on agriculture and possibly due to household food security and social capital considerations individuals were reluctant to quit agriculture altogether. This also suggests that agriculture might be perceived as a risk-reducing strategy for those individuals who are willing and able to find other employment opportunities outside the agricultural sector.

Determinants of flows out of agriculture

The estimation results are reported in Table 4. The likelihood ratio chi-square test is significant at the 1 per cent level, with the Wald test and likelihood ratio test providing support for the model. The Hausman and Small-Hsiao tests confirm that the IIA (independence of irrelevant alternatives) assumption has not been violated.

The results are generally in line with previous studies. The significant gender effect on the labour occupational choices suggests that women have a lower likelihood of switching to industry and services rather than staying in agriculture and that, at the same time, they are more likely to become unemployed or to leave the labour force altogether.

Table 4: Determinants of labour flows out of agriculture of a sample of 71,862 people engaged in agriculture in Romania, 2003-06.

Variable	Industry and services			Non-employment		
	Coefficient	Odds ratio	Marginal effect	Coefficient	Odds ratio	Marginal effect
female	-0.356*** (0.078)	0.701	-0.005***	0.330*** (0.042)	1.390	0.013***
married	-0.076 (0.069)	0.927	-0.001	-0.485*** (0.038)	0.616	-0.021***
educmedium	0.677*** (0.059)	1.969	0.011***	0.102** (0.045)	1.108	0.004**
educhigh	1.126*** (0.159)	3.083	0.03***	-0.116 (0.199)	0.891	-0.005
agriedu	0.060 (0.088)	1.062	0.001	-0.253** (0.109)	0.776	-0.009***
age15_24	1.028*** (0.103)	2.796	0.022***	0.985*** (0.078)	2.678	0.056***
age25_34	0.575*** (0.085)	1.777	0.011***	-0.111 (0.079)	0.895	-0.005
age35_44	0.398*** (0.082)	1.489	0.007***	-0.013 (0.076)	0.987	-0.001
age55_64	-0.560*** (0.111)	0.571	-0.007***	0.271*** (0.070)	1.311	0.012***
age65_99	-1.322*** (0.182)	0.267	-0.015***	2.104*** (0.059)	8.197	0.170***
children	0.158** (0.071)	1.171	0.002**	0.092 (0.063)	1.096	0.004
female_children	-0.170 (0.110)	0.843	-0.002*	0.148* (0.078)	1.159	0.006*
selfempl	-0.416*** (0.083)	0.659	-0.006***	-0.381*** (0.093)	0.683	-0.015***
familywork	-0.241*** (0.090)	0.786	-0.004***	0.042 (0.094)	1.042	0.002
popdensity	-0.001*** (0.000)	0.999	-0.000***	0.000 (0.000)	1.000	0.000
regwagelag	0.646*** (0.154)	1.909	0.009***	0.161 (0.102)	1.175	0.006
emplgrowthnonagr	0.053*** (0.011)	1.054	0.001***	0.0613*** (0.007)	1.063	0.002***
yr2004_5	-0.666*** (0.126)	0.514	-0.01***	0.203** (0.097)	1.225	0.009**
yr2005_6	-0.167** (0.082)	0.846	-0.003***	0.953*** (0.074)	2.593	0.042***
Constant	-3.992*** (0.185)	0.018		-4.036*** (0.154)	0.018	
Likelihood ratio	5593.58***					

Note: standard errors in parentheses; levels of significance: ***1%; **5%: *10%

This would confirm that men play a more active role in the labour market (Bojnec and Dries, 2005) and that they are on average more mobile in terms of sectoral adjustments. In contrast to some previous studies which found that married individuals engaged in farming activities are less mobile (Weiss, 1999; Bojnec *et al.*, 2003; Bojnec and Dries, 2005; Van Herck, 2009) in this study the marital status does not play a significant role for the occupational switch to industry/services. However, it has a significant and negative effect on the likelihood of flowing to non-employment.

Consistent with the human capital literature, the highly statistically significant education variables imply that individuals with higher levels of education are more likely to leave agriculture to work in other sectors. Medium education is also positively associated with the probability of flowing to non-employment, which may be due to frictional unemployment while waiting for better employment opportunities. It could be asserted that agricultural specific human capital is associated with a higher expectation of continuing farming (Weiss, 1999). However, the results here suggest that agricultural specific education only reduces the likelihood of exiting to non-employment.

The expected non-linear age function is confirmed in this analysis, so that younger individuals are those who have a longer period to reap the benefits of migrating for better employment opportunities, and are thus associated with a higher likelihood of leaving agriculture for industry and services, up to a point where this probability diminishes so that older individuals are more likely to stay in agriculture (Sumner, 1982; Corsi and Findeis, 2000; Ahituv and Kimhi, 2002; Bojnec and Dries, 2005; Breustedt and Glauben, 2007). The turning point is somewhere between 45 and 54 years, chosen as the reference category. Moreover, individuals between 15 and 24 years are also positively associated with the probability of flowing to non-employment, which could be also due to frictional unemployment. On the other hand, the positive coefficients in the non-employment outcome for those over 55 and even higher for those over 65 are associated with the retirement of these individuals.

Whereas the presence of children under 15 in the household is associated with a higher likelihood of switching to industry and services, which may be connected with the need for higher income and better living standards for the family, the probability of individuals of flowing to non-employment would only concern women, due to the fact that women play a more active role in the family unit, in terms of child bearing, housework and other household-related tasks.

The job-related characteristics also confirm the expected direction of relationships, so that family workers and self-employed individuals in the agricultural sector have a lower likelihood of flowing to industry and services in comparison to employees. At a first glance it seems that being a family-worker or self-employed are important non-pecuniary attributes related to the pride, autonomy and sense of responsibility associated with farming activities (Van Herck, 2009). In this respect, looking at the magnitude of the parameters, it would seem that self-employment has even a larger effect than being a family worker. On the other hand, as shown in the descriptive statistics, the Romanian agricultural sector is mainly characterised by self-employed individuals, fol-lowed by family workers, and lastly by a small percentage of employees. Thus, the results may simply reflect the different shares and instead confirm the very low mobility of agricultural labour. In general, it seems plausible to conclude that employees represent the most mobile segment of the labour force, since these individuals are more responsive to market prices and to better employment opportunities.

Lastly, individuals' decisions to move across sectors appear to be associated with the labour market conditions at the regional level, so that higher employment growth in the non-agricultural sector would result in a higher likelihood of leaving agriculture, to both industry and services and to non-employment (frictional unemployment). This would imply that individuals' migration decisions are highly responsive to job opportunities and therefore that job creation, particularly in rural areas, would represent an important determinant for the outflows of agricultural labour. The highly statistically significant coefficient of the reservation wage on the likelihood of labour flowing out of agriculture to industry and services also confirms that relative growth results in a strong pull effect of other sectors on agricultural labour. Hence, regional economic growth is an important demand-side determinant of labour movements which would trigger the process of structural change.

The negative sign of the regional population density is opposite to prior expectations as the higher the density the lower is the likelihood of agricultural labour flowing to industry and services. In the literature this variable has often been used to proxy job opportunities, suggesting that less populated rural areas would exhibit fewer off-farm opportunities for agricultural labour (Juvančič and Erjavec, 2005) whereas more densely populated regions are generally associated with higher exit rates from agriculture, also suggesting higher opportunity cost of land in these areas (Goetz and Debertin, 2001; Breustedt and Glauben, 2007; Van Herck, 2009). In contrast, other studies have found that a high population density is likely to reduce farm exit rates. As argued by Glauben *et al.* (2006), the findings may simply suggest that urban areas have undergone greater structural change in the past than rural areas. Nonetheless, our results might be a consequence of greater competition which is prevailing in more urban areas and which may thus prevent individuals in finding other employment outside agriculture.

The time dummies, mainly included to control for different year effects in the pooled sample, indicate that the main outflows of agricultural labour towards industry and services occurred during the first years of analysis, i.e. between 2003 and 2004, and seem to have decreased in the subsequent years (from 2004 to 2006), whereas movements to non-employment have progressively increased with major flows occurring in the final period of analysis, i.e. between 2005 and 2006, most probably associated with an increased share of retired farmers.

The empirical analysis has also examined the determinants of labour movements from industry and services towards agriculture[5]. Although these flows are small in relative terms when compared to the movements out of agriculture, they are still important to consider. For example, in absolute terms, 1,421 people moved to the agricultural sector

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[5] These estimation results are not included in the paper but are available upon request.

in the period 2003-06 in comparison to 1,653 who moved from agriculture to industry and services. This suggests that agriculture still represented an important source of additional income, especially for those less educated, and a retirement choice that can top-up the low pensions for the elderly.

Conclusions

By looking at the post-transition period in Romania, this paper examined the determinants of inter-sectoral labour movements and focussed on the facilitators of, and barriers to, farm labour mobility. The following conclusions can be drawn:

- First of all, population ageing has a strong influence on the observed outflow of agricultural labour. Retirement represents the main farm outflow channel – the majority of agricultural labour movements concern people aged 64 and over. Secondly, the slow pace of the out farm migration may suggest the presence of mobility and structural impediments which prevent labour adjustments.
- Overall, male, younger and better educated individuals are found to be more mobile and more likely to leave agriculture and flow to industry and services. The predominant share of family workers and self-employed in the farm sector is negatively associated with exiting agriculture. In comparison to employees, these workers appear to have lower incentives to flow to other sectoral employment and thus contribute to the surplus of labour in the farm sector. In line with previous studies, the reservation wage and employment growth outside agriculture are important pull-factors for facilitating the movement of labour to non-farm activities.
- In the other direction, the movements of labour from industry and services to agriculture are associated with the retirement of people and with unemployment, so that an old age and low levels of education would constitute positive determinants. In this respect, agriculture could become a sink for the less-skilled and unemployed persons, and provide a source of income for the elderly.

The policy implications of these findings point to the need for investments in human capital specifically in education, with the purpose of enhancing the mobility of labour and thus facilitating a more efficient labour allocation. By the same token, demand-side conditions must be not be neglected, as improving the supply side of labour alone would only result in a surplus of labour in the off-farm market with little scope for switching employment sector. Whereas favourable labour market conditions need to be in place to sustain a smooth transition across activities, priority should be placed on creating alternative sources of income from non-agricultural activities in rural areas.

The large share of people engaged in farming activities in Romania despite the very low levels of productivity clearly suggests that agriculture provides a source of minimum income for many rural households and mitigates rural poverty.

In order to pull these households out of the poverty trap, rural development is essential. The National Rural Development Programme of Romania for the period 2007-2013 amounted to approximately EUR 9 billion. However, only 27.6 per cent of this amount was spent on Axis 3, which aimed at the economic diversification and quality of life in rural areas, compared to 44.2 per cent of total expenditure for Axis 1 – competitiveness of agriculture and forestry sectors (Redman, 2008). Furthermore, if the Axis 3 measure on village renewal and basic rural services absorbed 17.2 per cent of all rural development expenditure, the measure with a high potential to create rural jobs – support for the creation and development of rural enterprises – was allocated only 4.3 per cent.

Looking forward, Pillar 2 of the Common Agricultural Policy for the period 2014-2020 gives more flexibility to the EU Member States to tackle some specific issues of their rural areas and decide which measures to choose without the 'straitjacket' of Axes and minimum spending, but with targets set against six broad objectives. One of these objectives is 'Promoting social inclusion, poverty reduction and economic development in rural areas', which is important to facilitate labour mobility. However, as stated by Davidova *et al.* (2013), the simple fact that more appropriate and more flexible measures are included in the menu for Pillar 2 for the period 2014-2020 does not necessary guarantee their adoption by the individual EU Member States. A proper emphasis on rural development and the creation of rural non-farm jobs, together with the accelerated exit of farmers of retirement age will help the flow of labour out of agriculture and the acceleration of structural change in Romanian agriculture.

Acknowledgements

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