JOB CREATION AND JOB DESTRUCTION IN THE EU AGRICULTURE

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Abstract

This is the first paper to study job creation and destruction in EU agriculture. We disaggregate employment patterns and job flows into detailed intra-sectoral labour adjustment dynamics based on farm level panel observations from 1989-2006. We find that: (1) job creation and destruction rates in EU agriculture are high compared to other sectors; (2) there are important differences in job creation and destruction rates between different member states; (3) this can be attributed to differing initial farm structures: member states with small average farm sizes display higher job creation and destruction rates than those with larger average farm sizes.

Keywords

Job creation; job destruction; FADN; EU; agricultural labour adjustment.

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1. INTRODUCTION

European and other developed economies' agricultural sectors experienced dramatic structural labour adjustments in the post-war period. On the one hand, economic growth and rising agricultural productivity have led to continuous net labour outflow from agriculture. On the other hand, specialisation, changes in the demand structure and in scale of production have led to structural shifts in the demand for the amount and skills of the agricultural labour force.

There are two main approaches in the literature that contribute to explaining changes in employment: household models and job creation and destruction models. The models based on farm household utility maximisation are extensively used to explain the observed patterns of adjustment in agriculture (Huffman, 1980; Huffman and Lange, 1989; Sumner, 1982). In particular, farm household models are employed to explain the allocation of household labour between leisure, off-farm labour and farm labour. Household members' human capital endowments, such as education, skills and experience; local labour market conditions; substitutability of household labour; farm characteristics, such as farm size, farm profitability and farm income variability; and support through government programs are among the key variables that are used in these models to explain the agricultural labour adjustments (Ahearn et al., 2006; Bojnec and Dries, 2005; Gould and Saupe, 1989; Mishra and Goodwin, 1997; Rizov and Swinnen, 2004; Serra et al., 2005; Woldehanna et al., 2000).

The farm household models are well suited for explaining adjustments in aggregate/net employment. However, behind the aggregate and net employment figures, important structural adjustments in agricultural employment may be hidden. Evidence from the empirical literature shows that in most sectors sectoral labour behaviour is characterised by large simultaneous creation and destruction of jobs (Davis and Haltiwanger, 1992; Blanchflower and Burgess, 1996; Bilsen and Konings, 1998; Mortensen and Pissarides, 1999; Commander and Kollo, 2008). The farm household models, which in general assume representative/homogenous firms and/or homogenous shocks, are unable to explain the observed simultaneous divergence in job flows. Hence, in the context of our study, an important shortcoming of the farm household models is that they are unable to explain intra-sectoral job flows (job creation and job destruction). These job flows are due to the heterogeneity of the labour force and take place simultaneously so that, as a result, they are hidden behind the net figures of changes in sectoral employment.

Recent developments in the search and matching theory have put forward theoretical explanations of the creation and destruction of jobs in the overall economy as well as at sectoral level. According to the search and matching theory there is a constant and simultaneous flow of new and destroyed jobs in the economy. The main drivers of job reallocation – i.e. labour adjustment – are *firm heterogeneity* given by firms' structural differences and/or *idiosyncratic shocks* faced by firms (McCall 1970; Mortensen and Pissarides 1994; Pissarides 2000; Petrongolo and Pissarides 2001; Klein, Schuh, and Triest 2003).

The present paper adopts the job creation and job destruction approach to study the agricultural labour adjustments in the EU over the period 1989-2006. The main advantage of this approach – vis-à-vis farm household models – is that it is able to disaggregate the employment patterns and job flows into more detailed intra-sectoral labour adjustment dynamics. The job creation and job destruction approach allows us to identify the sources of job growth and job losses among different types of farms (e.g. small versus big, family versus cooperative), agricultural sub-sectors (e.g. cereals, horticulture, animal production), labour types (family versus hired labour), and their variation over time. Moreover, this approach is able to identify the structural changes in agricultural employment, particularly the role of farm entry and exit on labour adjustments in agriculture.

Despite that there are numerous studies that apply the job creation and job destruction methodology to the manufacturing and services sector, a study analysing job creation and job destruction in the EU agriculture is still lacking. This is particularly surprising, given the significant farm labour adjustments that have been observed in EU agriculture in recent decades. As a result, the identification of the types of farms that create jobs and that lay off labour, the role of farm exit and farm specialisation, differences between family and hired labour adjustments, and their dynamics are not yet fully explored and understood.

Following Davis and Haltiwanger (1992), we measure gross job creation (GJC) and gross job destruction (GJD) as the aggregate increase (decrease) in the amount of labour employed in growing farms (shrinking farms). Relying on the job creation and job destruction approach we analyse four issues: (i) the magnitude of job creation, job destruction and job reallocation in the EU agriculture; (ii) cross-sectoral and farm-type differences in job creation and job destruction; (iii) the variation of these indices over time; and (iv) differences in labour type being created and/or destructed.

The empirical analysis is based on a unique farm level panel dataset from the Farm Accountancy Data Network (FADN). The FADN is the only source of micro-economic data that is harmonised (the bookkeeping principles are the same across all EU Member States), that covers the whole EU, and that is representative of the commercial agricultural holdings in the EU. Holdings are selected to take part in the survey on the basis of sampling plans established at the level of each region in the EU. Additionally, the advantage of the FADN data is that it is representative for 90% of utilised agricultural area and it contains detailed information on labour and other production and financial indicators.

Empirical findings from the existing literature on job creation and job destruction in non-agricultural sectors (Davis and Haltiwanger, 1992; Blanchflower and Burgess, 1996; Bilsen and Konings, 1998; Mortensen and Pissarides, 1994; Commander and Kollo, 2008), suggest a number of hypotheses that are tested in our paper. First, the job reallocation is inversely correlated with capital intensity.[2] This suggests that job creation/destruction might be relatively low in agriculture, because agricultural production is relatively capital intensive. Given differences in capital intensity between agricultural sub-sectors, the empirical results may also yield different gross job creation and destruction rates across agricultural sub-sectors. Second, smaller and younger establishments create and destroy more jobs than larger and older firms. Third, firm entries and exits play a major role in explaining the aggregate job creation job and destruction. Fourth, at the individual level, the main cause of job turnover is idiosyncratic shocks, i.e. firm specific shocks. Idiosyncratic shocks are particularly important in agriculture (e.g. farm household life crises, shocks related to health status of farm family members, local differences in weather, spread of diseases). This suggests high job creation/destruction in agriculture due to idiosyncratic shocks. Fifth, there is a large persistence in job creation and job destruction. In other words, the idiosyncratic shocks that cause job reallocation do not reverse easily. Sixth, job creation and job destruction flows are negatively correlated. This means that in times of recession job destruction rates increase while job creation rates are reduced, and vice versa in times of

[2] A general finding in the literature is that jobs are created and destroyed more rapidly in services than in the manufacturing sector.

expansion. Seventh, job destruction is more "volatile", in the sense that the length of time when job destruction is the dominant flow is shorter than the length of time when job creation is the dominant flow. Finally, the job creation and destruction rates may differ across countries and even across regions within a country.

The remainder of the paper is organised as follows. First, we develop a theoretical framework for analysing job creation and destruction in agriculture. Second, we discuss some concepts that we use in the empirical estimations section, such as farm growth, job creation rate and job destruction rate. Next, we present empirical results on job destruction and creation in the EU agriculture. Finally, we discuss our findings and derive conclusions.

2. THEORETICAL FRAMEWORK

We employ the model of Klein, Schuh, and Triest (2003). According to Klein, Schuh, and Triest (2003), there may be two sources of firm specific gross job creation and destruction within a narrowly-defined industry.[3] Firms may have *structural differences* or firms may have common structure but face *idiosyncratic shocks*. In the context of the EU agriculture, the farm structural differences may arise due to the technological differences (e.g. labour versus capital intensive production), production structure (the mix of agricultural activities), labour type (family versus hired), and variation in the subsidisation across the agricultural sub-sectors. The idiosyncratic shocks include farm specific shocks, which vary across farms in a given period, such as regional differences in weather, crop and animal diseases, productivity changes, farm household life crises, and/or shocks related to health status of farm family members. These idiosyncratic shocks are important in the agricultural sector, because several shocks, such as weather, diseases and farm household life crises, are specific to agriculture and hence they may expose the agricultural sector to larger employment adjustments than other industries.

The main effects of the heterogeneity in the structures and idiosyncratic shocks can be made explicit in a simple model. Assume that labour demand of farm *i* is given by:

(1) $D_i = D(p, w, r, s, T_i, H_i)$

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[3] Klein, Schuh, and Triest (2003) model the effect of the real exchange rate in the presence of heterogeneity arising from the structural differences across firms on job creation and job destruction in U.S. manufacturing industries over the period 1973 to 1993.

where p is a vector of output price, w is the wage rate,[4] r is a vector of other input prices, s are subsidies, T is farm technology and H are other farm household specific characteristics which affect the labour demand.

In equation (1) structural differences are determined by the mix of output produced and farm specific technology, T_i. An asymmetric change in output prices, input prices or/and subsidies (e.g. due to changes in the market intervention policy) would induce a differentiated employment response between farms. For example, farms specialised in products for which the relative output prices increase will create jobs, while farms specialised in products for which the relative prices decrease will destroy jobs. The idiosyncratic shocks affect farm labour through the farm household specific characteristics, H_i. Classical examples of idiosyncratic shocks in agricultural production are the local variations in crop/animal diseases and weather conditions. Farms affected by the diseases or bad weather will destruct jobs, while farms experiencing good weather and no diseases will create jobs.

To illustrate the GJC and GJD effects in agriculture we assume two types of farms: farm 1 (dairy farm) and farm two (crop farm) with their respective labour demand given by D_{10} and D_{20} (upper panel in Figure 1). The horizontal summation of D_{10} and D_{20} yields the aggregate labour demand, D. The equilibrium employment of farm 1, farm 2 and the aggregate employment, and the equilibrium wage are L^*_{10}, L^*_{20}, L^*, w^*, respectively.

INSERT FIGURE 1 HERE

Consider an asymmetric change in the agricultural policy, s_1, which increases the support for the crop sector to s_{1C}, while it reduces the support for the dairy sector to s_{1D}. This implies that farm 1, which is specialised in dairy, will reduce its labour demand (from D_{10} to D_{11}), whereas farm 2, which is specialised in crop production, will increase its labour demand (from D_{20} to D_{21}). In equilibrium farm 1 destroys

[4] We assume a small agricultural sector in the overall economy implying an exogenous wage rate.

$L^*_{10} - L^*_{11}$ jobs, whereas farm 2 creates $L^*_{21} - L^*_{20}$ jobs. Because the GJC is equal to GJD ($L^*_{10} - L^*_{11} = L^*_{21} - L^*_{20}$), the equilibrium aggregate labour is not affected and remains at L^*. The lower panel in Figure 1 shows the GJC and GJD curves. Even though, the aggregate employment is not affected, there are important (hidden) structural changes taking place in the agricultural employment. Jobs are destroyed in the dairy sector while new jobs are created in the crop sector, both equal to GJD^*_1, where $GJD^*_1 = L^*_{10} - L^*_{11} = L^*_{21} - L^*_{20} = GJC^*_1$.

Next consider a policy sock s_2, which implies both an increase in the crop subsidisation ($s_{2C} > s_{1C}$), and an increase in the dairy subsidisation ($s_{2D} = s_{1D}$). Everything else equal, this implies that the same shift in the labour demand of farm 1 (from D_{10} to D_{11}), but a stronger increase in the labour demand of farm 2 (from D_{20} to D_{22}). Now the GJC exceeds the GJD ($L^*_{22} - L^*_{20} > L^*_{10} - L^*_{11}$) and the aggregate labour employment increases to L^*_2, which is given in the upper panel of Figure 1. The GJC curve is above the GJD curve if the asymmetric policy shock induces an increase in the aggregate farm employment, implying that more jobs are created than destroyed. The GJC curve is below the GJD curve, if the policy shock leads to a reduction in the aggregate agricultural employment. At L^* the GJC and GJD curves intersect. The type and the magnitude of shocks determine the shape and the position of the GJC and GJD curves. Different types of shocks may change the shape or may move the GJC and GJD curves up or down.

3. EMPIRICAL FRAMEWORK

3.1. Concepts and definitions

We follow Davis and Haltiwanger (1992) to define the main variables in the empirical analysis: job creation rate (JCR) and job destruction rate (JDR). For each farm i, we define employment at time t as N_{it}. Total employment (N^T) at time t can then be defined as:

(2) $N^T_t = \sum_{i \in F_t} w_{it} N_{it}$

where F_t denotes the set of farms in the sample and w_{it} is the sample weight of farm i, which equals the reciprocal of its sampling probability. Sample weights are suppressed in what follows to simplify the notation but they are applied in the actual construction of the measures.

For each farm we define its size (x_{it}) as the average employment between periods t and t-1. Subsequently, farm growth (g_{it}) is measured as:

(3) $$g_{it} = \frac{N_{it} - N_{it-1}}{x_{it}}$$

Gross job creation in sub-sector s at year t is the sum of employment gains in year t at expanding farms in that sub-sector and gross job destruction is the sum of employment losses in shrinking farms. Job creation and destruction rates are calculated dividing gross measures by the size of the sub-sector in year t[5]:

(4) $$JCR_{st} = \frac{\sum_{i\in s, g_{it}>0} N_{it} - N_{it-1}}{\sum_{i\in s} x_{it}}$$

(5) $$JDR_{st} = \frac{\sum_{i\in s, g_{it}<0} | N_{it} - N_{it-1} |}{\sum_{i\in s} x_{it}}$$

3.2. Data

We use farm level employment data derived from the Farm Accountancy Data Network (FADN). FADN is a panel dataset, which means that farms that stay in the panel in consecutive years can be traced over time using a unique identifier.

Job creation and destruction in agriculture is analysed over the time period 1989 – 2006. Successive accession rounds within this time frame have changed the size and composition of the EU agricultural sector that is represented in the FADN panel. Therefore, we will focus the majority of our analysis on member states that were already included in the FADN panel in 1989.[6]

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[5] The size of the sub-sector is defined as average employment in the sub-sector between years t and t-1.
[6] We refer to this sub-sample as EU-12, including Belgium, Denmark, Germany, Greece, Spain, France, Ireland, Italy, Luxemburg, The Netherlands, Portugal and the United Kingdom.

Farm exits and entry are likely to represent an important aspect of job creation and destruction in EU agriculture. The application of farm weights in the definition of JCR and JDR allows us to take exits and entries – as well as on-farm labour adjustments – into account in the empirical estimation.[7]

3.3. Results

Table 1 presents average annual job creation and destruction rates for the EU-12 over the period 1989-2006. In line with expectations and results from aggregate labour adjustment studies we find that JDR tends to be larger than JCR. In other words, there is net labour outflow from agriculture. Figure 2 provides a graphical representation of this trend. The figure shows a slightly increasing trend in both job creation and destruction but with the average job destruction rate in general above the average job creation rate.

INSERT TABLE 1 HERE

INSERT FIGURE 2 HERE

A second observation that can be derived from table 1 (and figure 2) is that our JCR and JDR estimates are larger than the estimates found in the literature on other sectors. For example, in a study on several OECD countries by Contini et al. (1995), the JCR and JDR varied between 8% and 15% in the 1984-1992 period. Davis and Haltiwanger (1992) report JCR and JDR between 6% and 16% for the US manufacturing sector over the period 1972 and 1986. Smeets and Warzynski (2006) report slightly lower estimates for the Polish economy for the period between 1997 and 2000: 3% - 10%.

The higher JCR and JDR in agriculture compared to other sectors could be due to three reasons: stronger idiosyncratic shocks, seasonal labour and the relatively small size of establishments in agriculture. First, idiosyncratic shocks such as weather and diseases are largely specific to agriculture and may lead to large fluctuation in production and hence in employment compared to other sectors.

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[7] It should be noted that weights have been adjusted after merging FADN samples in consecutive years. This was necessary because in each year t some farms from the t-1 sample are dropped, while some new t farms – that were not yet present in the t-1 sample – are included. Since we can only calculate employment changes in farms that are in the sample both at t and t-1, weights have to be adjusted.

Second, agriculture, unlike most other sectors, relies heavily on seasonal labour. The employment of seasonal workers is easy to adjust since often seasonal labour is based on verbal agreements or contracted on a short-term basis only to cover the labour needs in the high season. Moreover, family labour which makes up an important share of agricultural employment is very flexible to adjust its labour allocation to on-farm activities. Since the farmer is a residual claimant, (s)he will have an incentive to flexibly allocate own labour between on-farm and off-farm employment according to the needs. In contrast, in other sectors of the economy long-term labour contracts often predominate.

Finally, studies from other industries have shown that smaller and younger establishments create and destroy more jobs than larger and older plants (Mortensen and Pissarides 1999). Given that in terms of employed labour, farms are relatively small enterprises, the JDR and JCR should be higher in agriculture.

Tables 2 and 3 show that both family and hired labour have high rates of labour flows indicating high flexibility for both types of labour. For hired labour this could be due to the seasonal nature of their employment while for family labour this could be the result of higher flexibility of on-farm versus off-farm employment decisions. The results also suggest slightly higher JCR and JDR for hired labour than for family labour. This may indicate that farmers first reduce hired labour and then own labour. These finding are also in line with the literature on structural changes in agricultural employment in the past decades (Errington, 1988; Errington and Gasson, 1994).

INSERT TABLE 2 HERE

INSERT TABLE 3 HERE

Table 4 shows that there is significant fluctuation in job creation and destruction rates between member states. However, net flows are negative with only three exceptions: Lithuania, Latvia and Poland.[8]

[8] It should be noted that for the 2004 accession countries, average JCR and JDR are calculated over two observations only, i.e. job flows between 2004 and 2005, and job flows between 2005 and 2006.

INSERT TABLE 4 HERE

Tables 5 and 6 decompose overall job creation and destruction rates for farms in different sectors and different size classes. The sector-specific results do not allow us to derive straightforward conclusions. On the other hand, table 6 supports the hypothesis that small farms relocate more jobs than big farms. This is consistent with empirical findings from the literature which find that smaller establishments create and destroy more jobs than larger plants (Mortensen and Pissarides, 1999).

INSERT TABLE 5 HERE

INSERT TABLE 6 HERE

There are three factors explaining this observations: stronger idiosyncratic shocks in small farms, structural changes, labour contracts. First, small farms may face stronger idiosyncratic shocks. This can be due to the fact that small farms are more exposed to family crises (big farms are likely to use more hired labour than family labour in relative terms). Furthermore, small farms have less possibilities to diversify production and economies of scale in (quasi-)fixed production factors may allow big farms to reduce uncertainty over production outcomes (e.g. through irrigation, pest control, crop/animal disease prevention, fertilizer use, insurance).

Second, there is a trend of continuous increasing farm sizes in the EU over time implying more job destruction (less job creation) in small farms than in big farms. Finally, many big farms are commercial farms and a substantial share of labour may have a long-term employment contract which makes big farms more rigid in terms of labour adjustment leading to smaller fluctuations in labour flows.

Table 7 provides evidence that farm size is also an important factor in explaining differences in job creation and destruction rates between member states. As the table shows, member states with a lower average farm size have a higher JCR and JDR.

INSERT TABLE 7 HERE

4. CONCLUSIONS

This paper provides the first attempt to apply the job creation and job destruction approach to study agricultural labour adjustments in the EU. This approach allows to disaggregate overall employment patterns and job flows into more detailed intra-sectoral labour adjustment dynamics. Despite that there are numerous studies that apply the job creation and job destruction methodology to the manufacturing and services sector, a study analysing job creation and job destruction in the EU agriculture is still lacking. This is surprising, given the significant farm labour adjustments that have been observed in EU agriculture in recent decades. As a result, the identification of the types of farms that create jobs and that lay off labour, the role of farm exit and farm specialisation, differences between family and hired labour adjustments, and their dynamics are not yet fully explored and understood.

We find a number of interesting results. First, job creation and destruction seems to be very important in agriculture when we compare our average job creation and destruction rates with those found in studies of the manufacturing sector and the overall economy. Three reasons may help to explain this observation: the higher occurrence of idiosyncratic shocks in agriculture; the importance of seasonal labour; and the relatively small size of agricultural enterprises.

Furthermore, job creation and destruction rates differ strongly between member states. This observation can be linked to structural differences of the farm sector in different member states. More specifically, we find strong support for the hypothesis that member states that have a smaller average farm size, have much higher job creation and destruction rates. While this is in line with findings in other studies, there are additional explanations specific to the situation in agriculture. These explanations include: stronger vulnerability of small farms to idiosyncratic shocks; a continuous trend towards larger farm sizes over time; and more flexible labour contracts in small farms vis-à-vis large farms.

These findings show that the disaggregation of agricultural labour adjustment patterns, using the job creation and destruction methodology, can be a strong tool in the exploration and quantification of the dynamics in the EU agricultural labour market.

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Table 1. Job creation and job destruction rate in agriculture, EU-12, 1989-2006

	JCR	JDR	NET
1989-1990	0.158	-0.163	-0.006
1990-1991	0.156	-0.156	0.000
1991-1992	0.188	-0.269	-0.081
1992-1993	0.159	-0.161	-0.002
1993-1994	0.192	-0.238	-0.046
1994-1995	0.176	-0.165	0.012
1995-1996	0.265	-0.253	0.012
1996-1997	0.196	-0.186	0.010
1997-1998	0.182	-0.178	0.003
1998-1999	0.240	-0.309	-0.069
1999-2000	0.170	-0.208	-0.038
2000-2001	0.174	-0.245	-0.072
2001-2002	0.215	-0.308	-0.092
2002-2003	0.202	-0.190	0.012
2003-2004	0.249	-0.268	-0.019
2004-2005	0.179	-0.166	0.013
2005-2006	0.235	-0.260	-0.025

Source: Own calculations based on FADN data

Table 2. Job creation and job destruction rate family labour, EU-12, 1989-2006

Family labour	JCR	JDR	NET
1989-1990	0.192	-0.221	-0.029
1990-1991	0.200	-0.188	0.011
1991-1992	0.232	-0.337	-0.104
1992-1993	0.192	-0.202	-0.010
1993-1994	0.256	-0.324	-0.067
1994-1995	0.216	-0.217	0.000
1995-1996	0.277	-0.255	0.022
1996-1997	0.200	-0.184	0.016
1997-1998	0.186	-0.177	0.009
1998-1999	0.246	-0.310	-0.065
1999-2000	0.165	-0.222	-0.057
2000-2001	0.180	-0.230	-0.050
2001-2002	0.199	-0.334	-0.134
2002-2003	0.207	-0.194	0.013
2003-2004	0.252	-0.277	-0.025
2004-2005	0.175	-0.167	0.008
2005-2006	0.240	-0.259	-0.019

Source: Own calculations based on FADN data

Table 3. Job creation and job destruction rate hired labour, EU-12, 1989-2006

Hired labour	JCR	JDR	NET
1989-1990	0.260	-0.281	-0.021
1990-1991	0.264	-0.265	-0.001
1991-1992	0.282	-0.372	-0.090
1992-1993	0.219	-0.253	-0.034
1993-1994	0.296	-0.318	-0.022
1994-1995	0.334	-0.225	0.109
1995-1996	0.264	-0.301	-0.037
1996-1997	0.254	-0.274	-0.020
1997-1998	0.214	-0.236	-0.022
1998-1999	0.262	-0.349	-0.087
1999-2000	0.251	-0.210	0.041
2000-2001	0.200	-0.359	-0.159
2001-2002	0.321	-0.257	0.064
2002-2003	0.237	-0.230	0.007
2003-2004	0.280	-0.279	0.002
2004-2005	0.236	-0.206	0.030
2005-2006	0.261	-0.305	-0.044

Source: Own calculations based on FADN data

Table 4. Average annual job creation and job destruction rate in different member states, 1989-2006*

	JCR	JDR	NET
Belgium	0.100	-0.125	-0.025
Cyprus	0.269	-0.438	-0.169
Czech Republic	0.093	-0.112	-0.020
Denmark	0.115	-0.141	-0.026
Germany	0.141	-0.169	-0.028
Greece	0.195	-0.233	-0.037
Spain	0.280	-0.293	-0.012
Estonia	0.178	-0.207	-0.029
France	0.146	-0.160	-0.014
Hungary	0.234	-0.241	-0.007
Ireland	0.104	-0.117	-0.012
Italy	0.272	-0.306	-0.035
Lithuania	0.368	-0.248	0.120
Luxemburg	0.117	-0.143	-0.027
Latvia	0.292	-0.213	0.079
Malta	0.188	-0.194	-0.006
The Netherlands	0.118	-0.133	-0.015
Austria	0.112	-0.151	-0.039
Poland	0.227	-0.220	0.007
Portugal	0.265	-0.330	-0.064
Finland	0.150	-0.191	-0.041
Sweden	0.157	-0.202	-0.045
Slovakia	0.100	-0.173	-0.073
Slovenia	0.265	-0.277	-0.012
UK	0.137	-0.187	-0.049

* average JCR and JDR since 1989 for EU-12; since 1995 for Austria, Finland and Sweden; since 2004 for all other member states.

Source: Own calculations based on FADN data

Table 5. Average annual job creation and job destruction rate per sector, EU-12, 1989-2006

	JCR	JDR	NET
Fieldcrops	0.210	-0.253	-0.043
Horticulture	0.230	-0.215	0.015
Spec. Vineyards, olives, fruit	0.228	-0.264	-0.036
Spec. Cattle and milk	0.187	-0.196	-0.010
Spec. Granivores	0.224	-0.208	0.016
Mixed crops	0.254	-0.321	-0.067
Mixed livestock	0.220	-0.248	-0.029
Mixed crops and livestock	0.243	-0.213	0.030

Source: Own calculations based on FADN data

Table 6. Average annual job creation and job destruction rate per size class, 1989-2006

	JCR	JDR	NET
< 2 ESU	0.232	-0.277	-0.045
2 - < 4 ESU	0.183	-0.486	-0.304
4 - < 6 ESU	0.321	-0.300	0.021
6 - < 8 ESU	0.302	-0.261	0.041
8 - < 12 ESU	0.268	-0.218	0.049
12 - < 16 ESU	0.243	-0.247	-0.004
16 - < 40 ESU	0.180	-0.179	0.001
40 - < 100 ESU	0.161	-0.158	0.004
100 - < 250 ESU	0.172	-0.156	0.016
>= 250 ESU	0.162	-0.164	-0.002

Source: Own calculations based on FADN data

Table 7. Annual job creation and job destruction rate in different member states in relation to average farm size, EU-12, 1989-2006*

	JCR	JDR	NET	Farm size*
Portugal	0.265	-0.333	-0.068	8
Greece	0.204	-0.233	-0.029	9
Spain	0.284	-0.297	-0.013	16
Italy	0.275	-0.306	-0.030	18
Ireland	0.104	-0.117	-0.013	21
Luxemburg	0.118	-0.142	-0.024	52
France	0.144	-0.159	-0.015	58
Germany	0.150	-0.167	-0.018	59
Belgium	0.100	-0.124	-0.024	72
Denmark	0.115	-0.139	-0.024	72
UK	0.136	-0.181	-0.045	83
The Netherlands	0.117	-0.132	-0.014	111

* average ESU per farm

Source: Own calculations based on FADN data

Figure 1. Job creation and job destruction

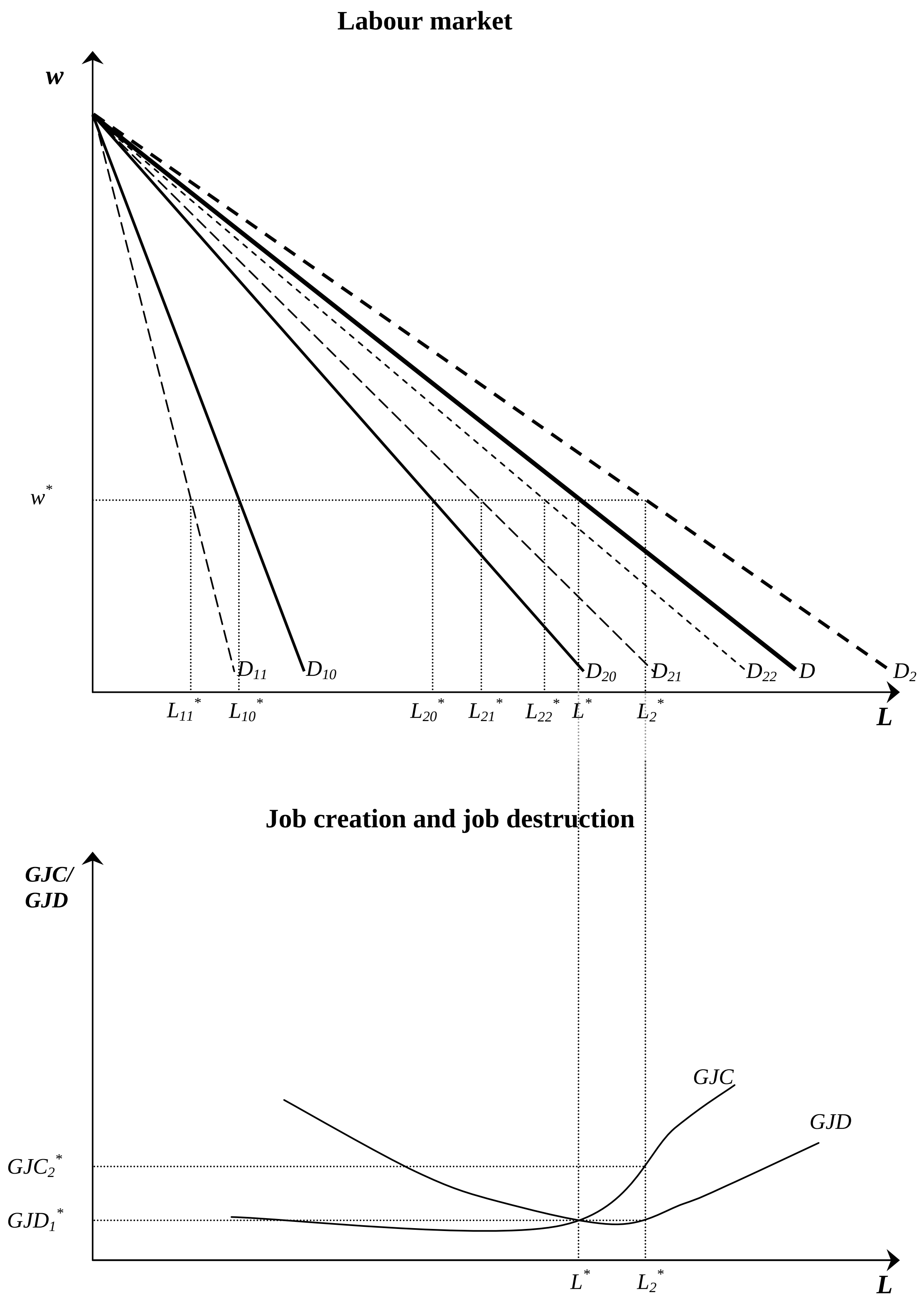
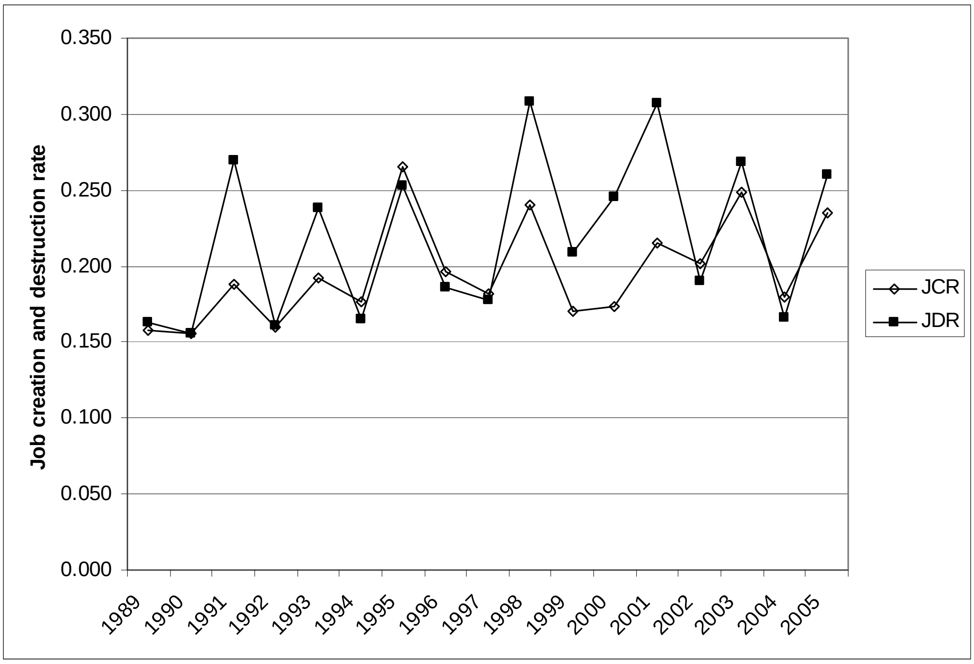


Figure 2. Job creation and job destruction rate in agriculture, EU-12, 1989-2006



Source: Own calculations based on FADN data