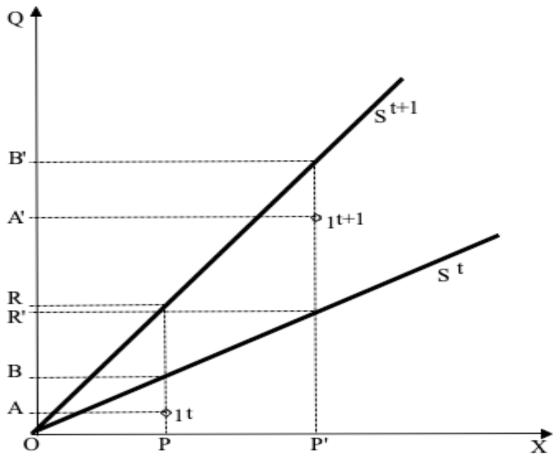
Research materials

1. The Malmquist index

Caves *et al.* (1982), and later Färe *et al.* (1994), adapted the index first proposed in Malmquist (1953) in order to measure the TFP growth of firms, industries and countries, and to decompose it in various parts. In order to illustrate this approach, consider Fig. A.1, which, without loss of generality, depicts two production sets, $\mathbf{T}^t$ and $\mathbf{T}^{t+1}$, characterised by a single output (**Q**) and a single input (**X**). There is a productive unit, **1**, taken in periods t and t+1. For the sake of simplicity, we assume for the time being that technology is characterised by constant returns to scale. Subsequently, rays **S**t and **S**t+1 respectively envelope $\mathbf{T}^t$ in the period t and $\mathbf{T}^{t+1}$ in t+1.

Figure A.1



The following output-oriented distance functions for periods *t* and *t+1*, as defined by Shephard (1970), are a measure of technical efficiency (*TE*):

$$D^t(\mathbf{X}^t, \mathbf{Q}^t) = \inf\{\theta : (\mathbf{X}^t, \mathbf{Q}^t/\theta) \in \mathbf{T}^t\} \quad (A.1)$$
$$D^{t+1}(\mathbf{X}^{t+1}, \mathbf{Q}^{t+1}) = \inf\{\theta : (\mathbf{X}^{t+1}, \mathbf{Q}^{t+1}/\theta) \in \mathbf{T}^{t+1}\} \quad (A.2)$$

Indeed, these functions identify the smallest θ allowing the productive unit to remain in the production set, which also corresponds to the inverse of the maximum expansion of the output for a given input. Hence, they define output-oriented technical efficiency. In Fig. A.1, function (A.1) corresponds to OA/OB, whereas function (A.2) corresponds to OA'/OB'.

On the other hand, the mixed-distance functions:

$$D^t(\mathbf{X}^{t+1}, \mathbf{Q}^{t+1}) = \inf\{\theta : (\mathbf{X}^{t+1}, \mathbf{Q}^{t+1}/\theta) \in \mathbf{T}^t\} \quad (A.3)$$

$$D^{t+1}(\mathbf{X}^t, \mathbf{Q}^t) = \inf\{\theta : (\mathbf{X}^t, \mathbf{Q}^t/\theta) \in \mathbf{T}^{t+1}\} \quad \text{(A.4)}$$

measure, respectively, the maximum expansion of output Q^{t+1} for a given input X^{t+1} compatible with the technology existing in period t, and the maximum expansion of output Q^t for a given input X^t compatible with the technology existing in period t+1. In Fig. A.1, the value of these functions is equal to OA'/OR' and OA/OR, respectively.

Functions (A.1)–(A.4) can be used to define the following Malmquist index number of TFP in period t:

$$M^t = \frac{D^t(\mathbf{X}^{t+1}, \mathbf{Q}^{t+1})}{D^t(\mathbf{X}^t, \mathbf{Q}^t)} \quad \text{(A.5)}$$

where the increase in productivity is measured by comparing the actual outputs in t and t^{+1} with the optimal outputs in t, given technology T^t. In Fig. A.1, this index is equal to the (OA'/OR')/(OA/OB) ratio. Similarly, the following Malmquist index number of TFP can be defined for period t+1 (and then relatively to technology Tt+1):

$$M^{t+1} = \frac{D^{t+1}(\mathbf{X}^{t+1}, \mathbf{Q}^{t+1})}{D^{t+1}(\mathbf{X}^t, \mathbf{Q}^t)} \quad \text{(A.6)}$$

which in Fig. A.1 is given by the (OA'/OB')/(OA/OR) ratio. Because (A.5) can differ from (A.6), although it does not in Fig. A.1, with only one output and constant returns to scale, Caves *et al.* (1982) suggested calculating the following Malmquist index number of TFP as the geometric mean of (A.5) and (A.6), thus obtaining:

$$M = \left[\frac{D^t(\mathbf{X}^{t+1}, \mathbf{Q}^{t+1})}{D^t(\mathbf{X}^t, \mathbf{Q}^t)} \times \frac{D^{t+1}(\mathbf{X}^{t+1}, \mathbf{Q}^{t+1})}{D^{t+1}(\mathbf{X}^t, \mathbf{Q}^t)}\right]1/2 \quad \text{(A.7)}$$

Färe *et al.* (1994) showed that the expression (A.7) can be reformulated in a way that highlights the respective role of technical progress and variation in technical efficiency:

$$M = \frac{D^{t+1}(\mathbf{X}^{t+1}, \mathbf{Q}^{t+1})}{D^t(\mathbf{X}^t, \mathbf{Q}^t)} \times \left[\frac{D^t(\mathbf{X}^{t+1}, \mathbf{Q}^{t+1})}{D^{t+1}(\mathbf{X}^{t+1}, \mathbf{Q}^{t+1})} \times \frac{D^t(\mathbf{X}^t, \mathbf{Q}^t)}{D^{t+1}(\mathbf{X}^t, \mathbf{Q}^t)}\right]1/2 \quad \text{(A.7')}$$

$$M = \Delta\, TE \times TP \quad \text{(A.7'')}$$

The ratio outside the square brackets in (A.7') is the relative variation in (output-oriented) technical efficiency, whereas the ratio inside the square brackets in (A.7') is a measure (in terms of relative variations) of technical progress. The latter term is equal to the geometric mean of the vertical displacements of the upper border of the production set, evaluated respectively in X^t and X^{t+1}. The nature of (A.7') can be better understood by calculating the value of this expression for the example considered in Fig. A.1. In this case, the Malmquist index will be equal to:

M = (OA'/OB')/(OA/OB) × [(OA'/OR')/(OA'/OB') × (OA/OB)/(OA/OR)]1/2 (A.7''')
= (OA'/OB')/(OA/OB) × [(OB'/OR') × (OR/OB)]1/2

Of course, a value greater than one for the Malmquist index indicates an increase in TFP, and vice versa. Note, however, that there may be an increase in TFP even in the presence of a decrease in technical efficiency if there is greater technical progress in terms of relative variations. Likewise, there may be an increase in TFP even in the presence of technical regress if there is a greater increase in technical efficiency in terms of relative variations.

The analysis becomes more complicated if the hypothesis of constant returns to scale is relinquished. It can be shown (see Simar and Wilson 1998) that in this case, TFP growth must always be evaluated imposing constant returns to scale on the reference technology. Hence the basic index is:

$$\mathrm{M} = [\,\frac{\Delta^{t}(\mathbf{X}^{t+1},\mathbf{Q}^{t+1})}{\Delta^{t}(\mathbf{X}^{t},\mathbf{Q}^{t})} \times \frac{\Delta^{t+1}(\mathbf{X}^{t+1},\mathbf{Q}^{t+1})}{\Delta^{t+1}(\mathbf{X}^{t},\mathbf{Q}^{t})}\,]1/2 \tag{A.8}$$

where D^t (.) and D^{t+1} (.) are distance functions evaluated vis-à-vis constant-returns-to-scale benchmarks, even in the case where the true technology is characterised by variable returns to scale. In this case, there are various decompositions that can be proposed for the Malmquist index. Here, we follow Simar and Wison (1998), taking:

$$\mathrm{M} = \frac{D^{t+1}(\mathbf{X}^{t+1},\mathbf{Q}^{t+1})}{D^{t}(\mathbf{X}^{t},\mathbf{Q}^{t})} \times [\,\frac{D^{t}(\mathbf{X}^{t+1},\mathbf{Q}^{t+1})}{D^{t+1}(\mathbf{X}^{t+1},\mathbf{Q}^{t+1})} \times \frac{D^{t}(\mathbf{X}^{t},\mathbf{Q}^{t})}{D^{t+1}(\mathbf{X}^{t},\mathbf{Q}^{t})}\,]1/2 \times \tag{A.8'}$$

$$\times \frac{\Delta^{t+1}(\mathbf{X}^{t+1},\mathbf{Q}^{t+1})/D^{t+1}(\mathbf{X}^{t+1},\mathbf{Q}^{t+1})}{\Delta^{t}(\mathbf{X}^{t},\mathbf{Q}^{t})/D^{t}(\mathbf{X}^{t},\mathbf{Q}^{t})} \times$$

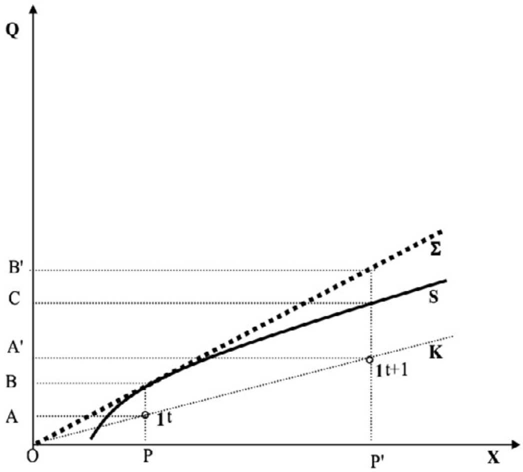
$$\times [\,\frac{\Delta^{t}(\mathbf{X}^{t+1},\mathbf{Q}^{t+1})/D^{t}(\mathbf{X}^{t+1},\mathbf{Q}^{t+1})}{\Delta^{t+1}(\mathbf{X}^{t+1},\mathbf{Q}^{t+1})/D^{t+1}(\mathbf{X}^{t+1},\mathbf{Q}^{t+1})} \times \frac{\Delta^{t}(\mathbf{X}^{t},\mathbf{Q}^{t})/D^{t}(\mathbf{X}^{t},\mathbf{Q}^{t})}{\Delta^{t+1}(\mathbf{X}^{t},\mathbf{Q}^{t})/D^{t+1}(\mathbf{X}^{t},\mathbf{Q}^{t})}\,]1/2$$

$$\mathrm{M} = DTE \times TP \times DScale \times DShape \tag{A.8''}$$

where D^t (.) and D^{t+1} (.) are distance functions evaluated vis-à-vis the true, variable-returns-to-scale (VRS), technology. Then, as before, the first multiplicand gives the relative variation of technical efficiency, *DTE*, and the second multiplicand (the first term in square brackets) is technical progress (in terms of relative variations), *TP*. Regarding the new terms, the third multiplicand, *DScale*, measures the changes over time in the distance of the true frontier from the constant-returns-to-scale benchmark frontier. Therefore, it defines the relative variation of scale efficiency. When *DScale* is larger than 1, the projection of $\mathbf{1}^{t+1}$ on the VRS frontier lies closer to the constant-returns-to-scale frontier than the projection of $\mathbf{1}^{t}$ on the VRS frontier, distances being measured in the output direction; the technically optimal scale, with local scale elasticity equal to 1, maximises productivity. The last multiplicand (the second term in square brackets), *DShape*, describes the changes in the shape of the technology at X^t and X^{t+1}. When *DShape* is larger than 1, the technology is becoming more and more convex, moving farther away the constant-returns-to-scale benchmark technology. The contrary is true when *DShape* is smaller than 1, whereas there are no changes in the shape of the technology when *DShape* is equal to 1.

In order to gain some insight into the meaning of Equation (A.8'), consider Fig. A.2. Suppose that the technology is represented, in both period t and period t + 1, by the **S** curve, whereas the constant-returns-to-scale reference technology is (in both periods) the **Σ** ray. In other words, there is no technical progress between t and t + 1, and the technology does not change shape from one period to another. Suppose that unit **1** produces an output of OA at time t and an output of OA' at time t + 1.

Figure A.2



Because the OA/OP and OA'/OP' ratios are equal, there is no variation in productivity for unit 1 over time (in Fig. A.2, unit 1 is always on the constant productivity locus **K**). However, OA'/OC > OA/OB, and therefore technical efficiency increases over time. Because technology does not change over time, the positive change in technical efficiency must be exactly balanced by a negative change in scale efficiency. Indeed, if the technology exhibits, as in the span between P and P', decreasing returns to scale, an increase in the production scale must necessarily move the production unit away from the optimal production scale.

Similarly to what has been done for (A.7'), the nature of (A.8') can be better understood by calculating the value of this expression for the example considered in Fig. A.2. Here, being the production frontier by hypothesis the same in periods t and t + 1, technical progress and changes in shape are absent, and both *TP* and *DShape* must be equal to 1. Hence, the Malmquist index will be equal to:

$$M = (OA'/OC)/(OA/OB)\times \frac{(OA'/OB')/(OA'/OC)}{(OA/OB)/(OA/OB)} \quad (A.8''')$$

$$M = (OA'/OB')/(OA/OB) = 1$$

In this simple case, (A.8''') reduces to the ratio (OA'/OB')/(OA/OB). However, because the distance of the production unit from the constant-returns-to-scale benchmark does not vary over time, (OA/OB) is equal to (OA'/OB'). Hence, M will be equal to 1, and the positive variation of the technical efficiency will be counterbalanced by an equivalent negative variation of scale efficiency.

It is clear that in practice, estimating the Malmquist index requires obtaining values for the distance functions that make up its formula. As can be easily deduced from the above discussion, this corresponds to identifying the constant-returns-to-scale and variable-returns-to-scale benchmark frontiers of the production units under scrutiny. This can be done through various techniques. In this paper, we adopted DEA. As pointed out by Simar and Wilson (1999), inference can be carried out on DEA-constructed Malmquist indexes by means of bootstrapping.

2. The definition of the EU country aggregates

In the main text, we refer to various EU country aggregates: EU-6, EU-9, EU-10, EU-12, EU-15, EU-25 and EU-27. Here, we provide a full account of the composition of these aggregates and of the periods to which they apply.

Country aggregate (acronym)	Country aggregate (list of countries)	Period of application
EU-6	Belgium, France, Germany, Italy, Luxembourg, the Netherlands	1957–
EU-9	above + Denmark, Ireland, United Kingdom	1973–
EU-10	above + Greece	1981–
EU-12	above + Spain, Portugal	1986–
EU-15	above + Austria, Sweden, Finland	1995–
EU-25	above + Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia	2004–
EU-27	above + Bulgaria, Romania	2007–

Clearly, only the EU-12, EU-15, EU-25, EU-27 aggregates are relevant for our analysis.

3. Robustness checks on the calculation of shadow prices

In a first robustness check, we computed shadow prices by including production subsidies among the outputs. There is much debate in the literature on whether and how production subsidies should be included in the production set (Nilsson 2017). In principle, these subsidies could be modelled as outputs, because for a very long time they were closely linked to production, acting upon output determination. Even the recent single farm payment policy was not fully decoupled, because the wealth and investment effects of the income transfer positively affect output. However, these effects are small (Sckokai and Moro 2009), and as a first choice, we preferred to exclude subsidies from the production set. Including them in the production set as outputs does not bring about a significant qualitative change in our results, as shown in Table A.1. We get more erratic figures for marginal rates than in Table 5, but the general picture does not change.

As a second robustness check, we computed marginal rates using quality-adjusted data for paid labour as numéraire. We have noted in the main text that we do not have human-capital data for paid labour and hence cannot attempt any full-fledged analysis of this type of labour. We can, however, try to assess the consequences of this omission for the measurement of our marginal rates. To do so, we adjust paid labour units by a relative wage term that proxies for variations in education and skills (see Berde and Piros 2006; more information on this adjustment is provided under the next heading of this section). Again, Table A.1 shows results similar to those in Table 5, although marginal rates rise more gently for the medium- and high-human-capital categories.

Table A1. Marginal rates of substitution between paid labour and family labour: robustness checks.

		Traditional analysis, full sample					
		Subsidies among outputs			Quality-adjusted paid labour as numéraire		
Years	N	low	medium	high	low	medium	high
1986	76	0.53	2.12	2.24	0.63	1.56	2.14
1990	86	0.16	1.55	2.69	0.20	1.34	2.16
1993	68	0.13	0.48	1.25	0.19	1.26	1.99
1995	71	0.14	0.97	0.89	0.17	1.30	1.49
1997	71	0.08	0.74	5.92	0.14	1.07	1.80
2000	97	0.23	2.10	2.82	0.27	171	2.46
2005	122	0.52	1.37	3.49	0.36	1.25	2.71
2010	135	0.77	3.65	6.73	1.29	2.82	4.42

Source: Own elaborations on FADN and FSS data.

4. The variables: sources and elaborations

Council Regulation No. 79/65/EEC established FADN's legal basis. FADN is a European system of sample surveys carried out each year collecting structural and accountancy data related to farms. These surveys seek to monitor the income and business activities of agricultural holdings and to evaluate the CAP's impact on farm production choices. Based on national surveys carried out by the EU MS, FADN is representative of the commercial agricultural holdings in the EU, which are farms exceeding a minimum economic size so as to cover the most relevant parts of agricultural production. A commercial farm is defined as a farm that is large enough to be the main activity of a farmer, providing her/him with a sufficient level of income to support a family. The threshold of the economic size varies across countries, which allows for classification of farms as country-specific commercial holdings. According to the FADN methodology, three dimensions are used as stratification variables: territorial location, economic size and type of farming. Territorial location corresponds to FADN regions, which are not necessarily NUTS2 regions.

Products is the variable *Total output*, code SE131 of FADN balance sheet data, which is the total output of crops and crop products, livestock and livestock products and other products. Materials is the variable *Total intermediate consumption*, code SE275, defined as Total specific costs (including inputs produced on the holding. and overheads arising from production in the accounting year). Capital is *Total assets*, code SE436. It corresponds to the closing value of fixed assets (land, permanent crops, quotas, buildings, machinery, breeding livestock and current assets, non-breeding livestock, stocks of agricultural products and other circulating capital). Production subsidies are the variable *Total subsidies – excluding on investments*, code SE605, which only includes subsidies on current operations linked to production.

In FADN, paid and unpaid labour are defined by the annual timework devoted to work on the holding, which includes all manual, administrative, executive and supervisory activities concerning production on the holding. For family labour, the variables provided are the following: *Unpaid labour input*, code SE015, which refers generally to family labour expressed in Family Work Units, abbreviated as FWU, and *Time worked in hours by unpaid labour input on holding,* code SE016. Analogously, two variables are provided for paid labour: *Paid labour input*, expressed in Annual Work Units, abbreviated as AWU, code SE020, and *Time worked in hours by paid labour input on holding*, code SE021. More precisely: "One AWU is equivalent to one person working full-time on the holding. A single person cannot exceed 1 AWU equivalent, even if his actual working time exceeds the norm for the region and type of holding. For persons employed for less than the whole year on the holding, the fraction of AWU is calculated as: Hours worked/Hours per AWU for the region/type of holding" (European Commission, 2008). In this paper we used for family and pad labour the variables coded respectively SE015 and SE020. The measure of working unit which we adopted, for both AWU and FWU, is of 2,200 annual work hours.[1] The use of hours worked implies the assumption of labour divisibility. On the other hand, the Council Regulation No 797/85 on improving the efficiency of agricultural structures, OJ 1985 L 93, establishes that the definition of "farmer practising farming as his main occupation", in the case of a natural person, includes the condition that the time spent on work unconnected with the holding must be less than half of the farmer's total working time, and that the proportion of income deriving from the agricultural holding must be 50% or more of the farmer's total income.

For purposes of robustness checks, a series of paid labour units, adjusted for quality, was computed by multiplying AWUs for the ratio between *Wages paid*, code SE370 and a measure of country-wide agricultural wage. This wage was obtained from *Cambridge Econometrics* data as the arithmetic mean between the compensation per employee and the unitary remuneration in agriculture.

Our 2005-based deflators were sourced from Eurostat, and are respectively those for *Agricultural goods output, including fruits and vegetables,* Output and Subsidies, *Goods and service currently consumed in agriculture*, for *Materials*, and *Goods and services contributing to agricultural investment*, for *Capital*. Similar 2000-based price indices were provided by the Eurostat, Unit E2 - Agricultural and Fisheries Statistics, Economic Accounts & Prices, for the period between 1986 and 2007.

The level of human capital was sourced from the Farm Structure Survey, Eurostat, Unit E1 - Farms, Agro-environment and rural development. The FSS surveys referring to 1985 and 1987, used for 1986, divide farm holders according to the primary, secondary and higher technical education levels, later the training types were based on practical experience, basic agricultural training and full agricultural training. The levels of low, medium and high human capital were then computed as the percentages of managers belonging to the corresponding training class. These percentages were used to divide the family labour hours into the three categories of low, medium and high human capital. In case of FSS missing values, the educational attainment of farm holders, referred to the percentages of farm holders with primary, secondary and tertiary educational level, has been used for Italian and Spanish regions. For Spain this information was downloaded from Instituto Valenciano de In-

[1] The definition of annual work unit derives from the FSS. It corresponds to the work performed by one person who is occupied on an agricultural holding on a full-time basis. Full-time means the minimum hours required by the relevant national provisions governing contracts of employment. In the past, FWU and AWU were equal to 2,300 hours up to 1990; from 1990 to 2000 they were equal to 2,200 hours; from 2001 onwards, the AWU is equal to 1,800 hours whereas the FWU remains equal to 2,200 hours (INEA, various years).

vestigaciones Económicas (http://www.ivie.es/) while the information concerning Italy was obtained from Destefanis and Sena (2005) and Costantini and Destefanis (2009). Note that the data are relative to NUTS2 regions that do not necessarily correspond to FADN regions. Hence, the correspondence between NUTS2 and FADN regions was determined according to the amount of utilised agricultural land.[2]

Other variables include the *Compensatory payments/area payments*, code SE611, *Decoupled payments*, code SE630, *Total support for rural development*, SE624, *Other rural development payments* (including "Support to help farmers to adapt to standards, to use farm advisory services, to improve the quality of agricultural products, training, afforestation and ecological stability of forests"), code SE623, and *Gross Farm Income* (defined as Output - Intermediate consumption + Balance current subsidies & Taxes), code SE410. More particularly, *Human capital transfer payments* in Table 7 is defined by code SE623 whereas *Rural development payments* in Table 7 is defined by SE624 - SE623; the latter include environmental subsidies and subsidies for less favourite areas.

[2] This information was provided by Francesco Pecci (University of Verona) in private correspondence.

Table A.1. Output-increasing TE by year and by FADN region in EU-12.

FADN region code and name	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
010. Schleswig-Holstein	0.79	0.71	0.73	0.77	0.74	0.76	0.79	0.84	0.83	0.79	0.80	0.81	0.81	0.80	0.99	0.91	0.91	0.91	0.91	0.99	0.84	0.78	0.76	0.93	0.85	0.81	0.86
020. Hamburg	0.76	0.83	0.85	0.75	0.83	1	0.84	1	0.92	0.86	0.89	0.85	0.80	0.95	0.93	0.88	0.80	0.93	0.80	0.83	0.82	0.78	0.81	1	0.87	0.78	0.95
030. Niedersachsen	0.77	0.73	0.74	0.71	0.76	0.83	0.74	0.76	0.77	0.79	0.84	0.82	0.81	0.92	0.99	0.96	0.82	0.90	0.82	0.89	0.85	0.79	0.77	0.94	0.84	0.83	0.86
050. Nordrhein-Westfalen	0.85	0.79	0.76	0.72	0.73	0.77	0.73	0.78	0.77	0.75	0.81	0.78	0.76	0.88	0.98	0.88	0.85	0.90	0.87	0.91	0.84	0.76	0.74	0.89	0.76	0.75	0.78
060. Hessen	0.66	0.62	0.63	0.58	0.60	0.70	0.65	0.65	0.68	0.70	0.70	0.65	0.73	0.78	0.81	0.81	0.70	0.74	0.66	0.72	0.72	0.59	0.61	0.76	0.64	0.64	0.73
070. Rheinland-Pfalz	0.68	0.66	0.67	0.66	0.65	0.68	0.71	0.71	0.72	0.72	0.76	0.74	0.75	0.70	0.81	0.80	0.79	0.88	0.72	0.79	0.72	0.64	0.71	0.92	0.75	0.74	0.86
080. Baden-Württemberg	0.65	0.62	0.66	0.63	0.62	0.68	0.67	0.67	0.71	0.71	0.74	0.70	0.69	0.72	0.84	0.80	0.73	0.80	0.67	0.75	0.67	0.59	0.62	0.81	0.64	0.65	0.75
090. Bayern	0.71	0.67	0.77	0.66	0.68	0.73	0.69	0.68	0.68	0.77	0.73	0.76	0.81	0.95	0.95	0.91	0.78	0.80	0.79	0.86	0.76	0.74	0.68	0.78	0.77	0.77	0.77
100. Saarland	0.98	0.81	0.77	0.66	0.72	0.72	0.71	0.71	0.68	0.82	0.76	0.76	0.76	0.82	0.91	1	0.97	0.99	0.84	1	0.77	0.77	0.72	0.73	0.76	0.73	0.78
121. Île de France	1	0.91	0.99	0.90	0.90	0.98	1	0.94	1	0.97	1	1	0.90	0.80	0.98	0.93	0.90	1	1	1	1	1	1	1	1	1	1
131. Champagne-Ardenne	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
132. Picardie	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.96	1	1	1	1	1	1	1	1	1	1
133. Haute-Normandie	0.92	0.92	0.96	0.85	0.84	0.91	0.92	0.89	0.95	0.92	0.95	0.92	0.88	0.96	1	0.94	0.95	1	1	0.93	0.97	0.91	0.92	0.98	0.99	0.91	0.93
134. Centre	0.90	0.98	0.96	0.92	0.82	0.86	0.86	0.83	0.84	0.79	0.82	0.85	0.78	0.74	0.86	0.80	0.94	0.90	0.95	0.91	1	1.00	1	1	1	1	1
135. Basse-Normandie	1	0.91	0.95	0.86	0.86	0.90	0.93	0.96	0.93	0.98	0.93	0.92	1	0.95	0.94	0.96	0.91	0.93	0.94	0.95	0.95	0.89	0.91	0.89	0.85	0.85	0.88
136. Bourgogne	0.79	1	0.93	0.88	0.88	0.82	0.84	0.87	0.87	0.91	0.93	0.92	0.86	0.84	0.96	0.88	0.86	0.88	0.89	0.84	0.89	0.81	0.87	0.92	0.84	0.82	0.87
141. Nord-Pas-de-Calais	1	0.93	1	1	1	1	1	0.98	0.98	0.97	0.98	0.94	0.99	1	0.99	0.94	0.95	1	1	0.93	0.92	0.82	0.88	1	0.88	0.87	0.86
151. Lorraine	0.88	1	1	0.99	1	1	1	1	1	1	1	0.99	1	1	1	1	1	1	0.92	0.94	1.00	0.98	0.97	1	0.98	1	0.94
152. Alsace	0.90	0.86	0.90	0.84	0.83	0.92	0.97	0.97	0.93	0.96	1	1	0.94	0.95	1	1	1	1	1	1	1	1	1	1	1	1	1
153. Franche-Comté	1	1	1	1	1	1	1	1	1	1	0.93	0.95	0.98	0.98	1	1	1	1	0.93	1	1	1	1	1	1	1	1
162. Pays de la Loire	0.85	1	1	0.85	0.80	0.83	0.90	1	1	0.99	0.96	0.91	0.94	0.97	1	0.98	0.97	0.97	1	1	0.98	0.91	0.94	0.97	0.91	0.91	0.90
163. Bretagne	0.88	0.98	0.98	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
164. Poitou-Charentes	0.73	0.91	0.88	0.91	0.97	0.95	0.82	0.77	0.84	0.92	0.94	0.87	0.82	0.97	0.98	1	0.95	0.99	1	1	1	1	0.93	1	0.91	0.91	1
182. Aquitaine	0.71	0.76	0.74	0.72	0.71	0.69	0.81	0.77	0.79	0.84	0.94	0.85	0.90	0.86	0.93	0.89	0.91	0.92	1	0.93	0.92	0.87	0.89	0.92	0.85	0.87	0.89
183. Midi-Pyrénées	0.59	0.73	0.73	0.68	0.70	0.72	0.60	0.64	0.64	0.73	0.74	0.72	0.69	0.67	0.77	0.79	0.71	0.76	0.75	0.81	0.79	0.74	0.73	0.77	0.74	0.73	0.75
184. Limousin	0.48	0.80	0.72	0.61	0.79	0.78	0.60	0.65	0.66	0.75	0.71	0.67	0.72	0.71	0.75	0.75	0.80	0.74	0.99	0.90	0.84	0.64	0.62	0.70	0.62	0.74	0.74
192. Rhônes-Alpes	0.70	0.78	0.81	0.80	0.77	0.75	0.74	0.87	0.87	0.89	0.86	0.84	0.76	0.71	0.87	0.88	0.80	0.81	0.84	0.81	0.84	0.77	0.83	0.84	0.80	0.76	0.81
193. Auvergne	0.55	0.74	0.77	0.67	0.67	0.66	0.63	0.69	0.71	0.84	0.79	0.80	0.75	0.78	0.81	0.82	0.82	0.78	1	1	0.81	1	0.86	0.89	1	0.90	0.92
201. Languedoc-Roussillon	0.83	0.81	0.87	0.81	0.84	0.89	0.81	0.89	0.96	0.98	1	0.85	0.70	0.76	1	0.84	0.86	0.93	0.89	0.79	0.81	0.79	0.83	0.83	0.87	0.83	0.84
203. Provence-Alpes-Côte	0.85	0.86	0.86	0.86	0.83	0.87	0.86	0.91	0.95	0.96	0.95	0.85	0.86	0.86	1	0.99	1	1	1	1	1	1	1	1	0.95	0.93	1

FADN region code and name	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
204. Corse	0.67	0.87	0.68	0.68	0.69	0.70	0.67	0.68	0.75	0.76	0.75	0.70	0.63	0.63	0.71	0.75	0.83	0.92	1	1	1	1	0.87	1	0.92	0.94	0.77
221. Valle d'Aoste	0.49	0.55	0.64	0.60	0.50	0.63	0.54	0.57	0.62	0.64	0.65	0.71	0.58	0.59	0.67	0.73	0.62	0.55	0.47	0.70	0.57	1	0.63	0.68	0.62	0.71	0.80
222. Piemonte	1	1	1	1	1	1	1	1	0.94	1	1	1	1	1	1	1	1	0.81	0.74	0.94	0.94	0.74	0.96	0.82	0.92	0.95	0.93
230. Lombardia	1	1	1	0.90	0.92	1	0.97	0.97	0.96	1	1	1	1	0.96	1	1	1	1	0.89	0.99	1	0.80	1	1	1	1	1
241. Trentino	0.86	0.88	0.87	0.97	1	1	0.78	0.82	0.85	0.87	1	1	0.73	0.63	0.81	1	1	0.98	0.79	0.96	0.96	0.87	1	1	1	1	1
242. Alto Adige	0.91	0.95	0.93	0.88	0.90	0.97	0.99	0.76	0.87	0.91	0.88	0.80	0.62	0.63	0.75	0.89	0.84	0.84	0.65	0.85	0.73	0.67	1	1	1	0.96	0.96
243. Veneto	1	0.95	1	1	0.94	0.91	0.84	0.96	1	1	1	1	1	0.78	1	0.83	0.94	0.83	0.67	0.83	0.78	0.69	0.86	0.90	0.80	0.92	0.91
244. Friuli Venezia Giulia	1	1	1	1	1	1	0.90	1	0.84	0.82	0.89	1	1	0.60	0.72	1	0.91	0.88	0.75	0.96	0.74	0.69	0.89	1.00	0.84	0.93	0.79
250. Liguria	1	1	1	1	1	1	0.95	1	0.86	0.96	1	1	0.83	0.92	1	1	1	0.93	0.88	1	1	1	1	1	1	1	1
260. Emilia Romagna	1	1	1	1	1	1	1	1	1	1	1	0.96	0.87	0.86	0.89	0.87	0.82	0.83	0.66	0.71	0.66	0.57	0.74	0.77	0.76	0.86	0.85
270. Toscana	0.79	0.78	0.83	0.90	0.90	0.91	0.95	0.84	0.82	0.90	1	0.93	0.75	0.65	0.81	0.92	0.90	0.85	0.65	0.91	0.86	0.68	0.72	0.80	0.80	0.92	0.89
281. Marche	0.95	0.95	0.90	0.95	0.77	0.77	0.68	0.77	0.78	0.83	0.81	1	1	1	1	0.67	1	0.67	0.69	1	0.78	0.69	0.81	0.77	0.72	0.79	0.83
282. Umbria	0.64	0.70	0.73	0.84	0.80	0.78	0.79	0.74	0.67	0.61	0.68	0.69	0.39	0.47	0.55	0.69	0.65	0.65	0.52	0.70	0.74	0.55	0.67	0.73	0.72	0.84	0.89
291. Lazio	0.86	0.76	1	0.85	0.94	0.98	0.84	1	0.96	1	0.92	0.92	0.75	1	1	1	1	0.74	1	0.91	0.79	0.64	0.80	0.89	0.79	0.89	0.89
292. Abruzzo	1	1	1	0.80	1.00	0.93	0.75	0.96	0.98	1	1	1	1	0.95	1	0.84	0.92	0.79	0.62	0.96	0.71	0.82	1	0.55	0.59	1	1
301. Molise	1	1	1	1	0.96	0.88	0.90	0.89	0.78	0.84	0.85	0.91	1	0.53	1	0.71	1	0.62	1	0.98	0.88	0.99	1	1	0.70	0.72	0.98
302. Campania	1	1	1	1	1	1	0.76	1	1	1	0.92	1	0.86	1	0.87	0.93	0.66	0.76	0.68	1	0.81	0.70	0.81	0.89	0.88	0.90	0.88
303. Calabria	1	1	1	1	1	0.95	0.54	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
311. Puglia	0.90	0.86	1	0.98	1	0.89	0.68	0.84	0.81	0.91	0.86	0.76	1	0.70	1	1	1	0.94	1	0.97	1	1	0.73	1	1	1	0.94
312. Basilicata	0.78	0.74	0.74	0.71	0.70	0.73	0.63	0.77	0.72	0.79	0.85	0.74	0.66	0.87	1	1	1	0.75	0.60	0.81	0.72	0.58	0.62	0.61	0.63	0.67	0.72
320. Sicilia	1	1	1	1	1	0.90	0.75	0.89	1	1	1	1	0.93	1	1	1	0.97	0.85	1	1	0.94	0.78	1	1	0.93	0.90	1
330. Sardegna	0.77	0.77	0.82	0.71	0.76	0.78	0.76	0.75	0.72	0.66	0.84	0.77	0.51	0.55	0.63	0.82	0.68	0.83	0.59	0.74	0.65	0.54	0.69	0.65	0.71	0.75	0.84
340. Belgium	0.97	0.90	0.95	1	1	1	1	1	1	0.99	1	0.99	0.94	1	1	1	1	1	1	1	0.97	0.84	0.93	1	0.97	0.95	0.98
350. Luxembourg	0.79	0.89	0.94	0.88	0.96	0.90	0.94	0.94	0.80	0.86	0.98	0.90	0.97	0.95	0.95	1	0.87	1	0.92	0.96	1	0.93	0.85	0.87	0.77	0.86	0.83
360. The Netherlands	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
370. Denmark	0.87	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
380. Ireland	0.51	0.59	0.65	0.47	0.49	0.52	0.51	0.59	0.55	0.61	0.59	0.60	0.53	0.52	0.61	0.64	0.58	0.64	0.92	0.72	0.71	0.68	0.63	0.60	0.64	0.70	0.66
411. England-North	0.83	0.81	0.82	0.80	0.92	0.91	0.88	0.79	0.76	0.71	0.74	0.79	0.75	0.75	0.85	0.83	0.83	0.91	0.76	0.75	0.79	0.69	0.61	0.66	0.62	0.64	0.66
412. England-East	1	1	1	1	1	1	1	0.99	1	1	0.99	1	1	1	1	1	1	1	0.98	1	1	0.88	0.78	0.79	0.76	0.79	0.79
413. England-West	0.80	0.83	0.83	0.80	0.76	0.82	0.85	0.80	0.79	0.71	0.73	0.81	0.80	0.76	0.85	0.86	0.89	0.89	0.72	0.77	0.80	0.71	0.62	0.70	0.62	0.65	0.67
421. Wales	0.66	0.69	0.74	0.64	0.62	0.68	0.67	0.65	0.60	0.58	0.63	0.68	0.64	0.63	0.66	0.78	0.78	0.77	0.70	0.72	0.68	0.60	0.65	0.60	0.57	0.62	0.56
431. Scotland	0.74	0.75	0.76	0.76	0.74	0.72	0.74	0.70	0.71	0.61	0.60	0.61	0.60	0.54	0.73	0.67	0.69	0.76	0.64	0.65	0.75	0.67	0.60	0.60	0.56	0.58	0.58

FADN region code and name	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
441. Northern Ireland	0.68	0.63	0.66	0.61	0.57	0.64	0.61	0.58	0.60	0.61	0.58	0.58	0.54	0.65	0.75	0.71	0.63	0.67	0.80	0.80	0.79	0.82	0.66	0.64	0.57	0.57	0.53
450. Makedonia/Thraki	1	1	1	1	1	1	0.52	1	1	1	1	0.93	1	0.59	1	1	0.79	0.83	1	0.78	0.63	0.76	0.81	0.65	0.63	0.60	0.61
460. Ipiro/ …	1	1	1	1	1	1	0.80	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.71	1	1	1
470. Thessalia	1	0.94	0.92	1	1	1	0.98	1	1	1	0.88	0.80	0.43	0.48	0.60	0.75	1	0.72	1	1	0.66	0.70	0.67	0.51	0.51	0.62	0.71
480. Sterea Ellas/…	1	0.95	1.00	0.96	0.97	0.94	0.81	0.97	0.94	1	0.97	0.96	0.86	0.98	1	1	1	1	1	0.82	0.75	0.77	1	0.70	0.61	0.72	0.84
500. Galicia	0.86	0.95	0.82	1	0.91	0.96	1	0.99	0.91	0.99	1	1	1	1	1	1	0.96	0.89	1	1	0.95	1	0.97	0.87	0.77	0.90	1.00
505. Asturias	1	0.96	0.86	1	0.64	0.70	0.73	0.92	1	0.87	1	1	1	1	1	0.97	1	1	1	1	1	1	1	1	0.80	0.91	0.71
510. Cantabria	1	1	1	1	0.86	0.83	0.83	0.95	0.84	0.93	1	0.90	1	1	1	1	1	0.86	1	1	1	1	1	1	0.79	1	1
515. Pais Vasco	0.83	1	1	0.92	1	0.83	0.81	0.99	0.87	0.87	0.99	0.94	1	0.76	0.88	1	0.87	0.85	0.93	1	0.80	0.87	0.96	0.97	0.85	0.95	0.92
520. Navarra	1	0.89	0.86	0.84	1	1	0.71	0.84	0.72	0.84	1	0.95	0.90	1.00	1	0.96	0.82	0.87	0.85	0.79	0.98	0.81	0.70	0.94	0.93	1	1
525. La Rioja	1	1	1	0.93	0.79	0.78	0.81	1	1	1	1	1	1	1	1	0.91	0.77	1	1	0.89	1	1	0.93	0.77	0.74	0.96	0.99
530. Aragón	0.76	0.65	0.72	0.62	0.74	0.73	0.89	0.78	0.78	0.81	0.92	0.89	0.80	0.86	1	1	1	0.86	1.00	0.76	0.83	1	0.71	0.92	1	0.81	1
535. Cataluna	0.64	0.95	0.72	0.66	0.78	1	0.92	1.00	0.83	0.92	0.76	0.84	0.75	0.64	0.83	0.90	0.73	0.75	0.60	0.63	0.75	0.61	0.73	0.71	0.68	0.78	0.83
540. Baleares	0.91	0.67	0.67	0.62	0.67	0.68	0.99	0.98	0.78	0.79	0.80	0.83	0.62	0.59	0.94	0.99	1	1	1	1	1	0.70	0.67	0.60	0.56	0.76	0.88
545. Castilla-León	0.86	0.97	0.88	1	0.93	0.85	0.80	0.95	0.91	1	0.84	0.81	0.68	0.77	0.97	0.98	0.87	0.95	0.94	0.80	0.85	1.00	1	1	0.95	1	0.87
550. Madrid	0.70	0.87	0.98	0.81	1	0.79	1	1	1	1	1	1	0.81	0.71	0.98	1	1.00	1.00	1.00	1.00	1.00	1.00	1	1	1	0.90	0.83
555. Castilla-La Mancha	1	1	1	1	1	0.90	0.87	0.90	1	0.88	0.94	0.88	0.74	0.63	0.88	0.88	0.96	0.81	0.79	0.67	0.80	0.79	0.71	0.58	0.62	0.86	0.95
560. Comunidad Valenciana	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
565. Murcia	0.63	1	1	1	1	1	0.77	0.98	0.79	0.92	0.96	1	1	0.80	1	0.95	1	1	1	0.98	1	0.79	0.76	0.93	0.80	0.77	0.92
570. Extremadura	0.98	0.85	1	1	0.81	0.86	0.79	0.72	0.79	0.94	0.81	0.68	0.60	0.47	0.76	0.75	0.81	0.88	0.83	0.75	0.77	0.98	1	0.80	0.66	0.83	0.80
575. Andalucia	1	1	1	1	0.97	1	1	1	0.84	0.88	1	1	0.86	0.60	1	0.99	1.00	0.87	0.80	0.84	0.90	0.76	0.78	0.74	0.90	0.84	0.84
580. Canarias	1	1	0.96	0.89	0.77	0.85	1	1	1	1	1	1	1	1	1	1	1	1	1	0.94	0.83	1	1	0.90	0.72	0.91	0.84
610. Entre Douro/…	0.76	1	1	1	1	1	0.46	1	1	1	1	1	1	1	1	1	1	1	1	0.97	0.92	1	0.83	0.73	0.68	0.73	0.69
630. Ribatejo/Oeste	0.62	0.62	0.64	0.60	0.62	0.54	0.51	0.54	0.59	0.70	1	0.60	1	0.52	0.89	0.69	0.68	0.81	0.63	0.85	0.88	0.92	1	1	1	1	1
640. Alentejo/do Algarve	0.67	0.62	0.61	0.61	0.53	0.57	0.51	0.52	0.56	0.59	0.58	0.46	0.43	0.41	0.50	0.47	0.52	0.52	0.50	0.44	0.52	0.52	0.62	0.60	0.62	0.74	0.85
650. Açores	1	1	0.80	0.70	1	1	0.52	0.63	1	0.65	1	1	0.56	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EU-12	0.85	0.88	0.88	0.85	0.86	0.86	0.82	0.87	0.86	0.88	0.89	0.88	0.83	0.82	0.91	0.91	0.89	0.88	0.87	0.89	0.87	0.83	0.85	0.86	0.82	0.86	0.87

Table A.2. Geometric mean of annual productivity growth components in EU-12, 1987-2012.

FADN region code and name	MI	DTE	TP	DScale	DShape
010. Schleswig-Holstein	1.019	1.007	1.015	1.000	1.002
020. Hamburg	1.026	1.009	1.014	1.012	0.994
030. Niedersachsen	1.023	1.003	1.018	0.996	1.002
050. Nordrhein-Westfalen	1.018	0.996	1.025	0.999	1.000
060. Hessen	1.014	0.998	1.012	1.000	1.000
070. Rheinland-Pfalz	1.017	1.014	1.002	1.003	1.001
080. Baden-Württemberg	1.017	1.008	1.006	1.000	1.002
090. Bayern	1.016	1.004	1.019	1.000	1.000
100. Saarland	1.004	0.979	1.020	0.998	1.003
Germany	**1.017**	**1.002**	**1.015**	**1.001**	**1.000**
121. Île de France	1.034	1.009	1.038	1.001	0.991
131. Champagne-Ardenne	1.021	1.000	1.021	0.999	0.995
132. Picardie	1.037	1.000	1.043	1.001	0.997
133. Haute-Normandie	1.023	0.997	1.021	1.002	0.995
134. Centre	1.025	1.011	1.025	1.001	0.993
135. Basse-Normandie	1.017	0.994	1.020	1.001	0.999
136. Bourgogne	1.013	1.009	1.006	0.999	0.997
141. Nord-Pas-de-Calais	1.015	0.994	1.028	1.000	1.001
151. Lorraine	1.019	0.997	1.020	0.998	1.001
152. Alsace	1.019	1.011	1.007	1.005	0.993
153. Franche-Comté	1.008	1.000	0.999	1.000	1.011
162. Pays de la Loire	1.018	1.003	1.019	0.992	0.998
163. Bretagne	1.024	0.999	1.038	1.000	0.998
164. Poitou-Charentes	1.025	1.012	1.013	1.001	0.999
182. Aquitaine	1.027	1.006	1.016	1.009	0.991
183. Midi-Pyrénées	1.021	1.013	1.016	1.002	1.002
184. Limousin	1.025	1.009	1.002	0.994	1.015
192. Rhônes-Alpes	1.013	1.012	1.007	0.992	0.998
193. Auvergne	1.025	1.018	1.038	0.995	0.969
201. Languedoc-Roussillon	1.010	1.005	1.018	1.002	0.989
203. Provence-Alpes-Côte	1.022	1.001	1.021	1.011	0.987
204. Corse	1.011	1.003	1.002	1.004	0.993
France	**1.020**	**1.005**	**1.019**	**1.001**	**0.996**
221. Valle d'Aosta	1.022	1.024	0.994	1.001	1.005
222. Piemonte	0.998	1.004	1.006	0.999	1.002
230. Lombardia	1.015	0.987	1.026	1.004	0.997
241. Trentino	1.001	1.014	0.993	1.002	0.991
242. Alto Adige	1.005	1.007	0.995	1.007	0.997
243. Veneto	1.009	0.992	1.004	0.999	1.004
244. Friuli Venezia Giulia	0.992	1.004	0.999	0.999	0.999
250. Liguria	1.001	0.998	1.003	0.998	1.006
260. Emilia Romagna	0.991	0.983	1.000	1.007	1.003

FADN region code and name	MI	DTE	TP	DScale	DShape
270. Toscana	0.998	1.018	1.000	0.999	0.995
281. Marche	0.981	0.985	1.084	0.993	1.074
282. Umbria	1.010	1.021	0.988	1.002	1.001
291. Lazio	1.002	0.994	1.006	0.985	0.995
292. Abruzzo	0.987	0.998	1.015	0.989	1.022
301. Molise	0.983	1.016	1.008	0.984	0.967
302. Campania	1.006	0.995	0.967	0.993	0.963
303. Calabria	1.021	0.996	0.655	1.016	0.946
311. Puglia	0.999	1.016	1.017	1.006	1.007
312. Basilicata	0.991	0.989	1.010	1.019	0.995
320. Sicilia	1.003	0.991	1.014	1.017	1.051
330. Sardegna	1.005	1.013	0.981	0.999	1.005
Italy	**1.001**	**1.002**	**1.000**	**1.001**	**1.000**
340. Belgium	**1.010**	**1.000**	**1.013**	**0.998**	**0.995**
350. Luxembourg	**1.013**	**0.998**	**1.020**	**1.001**	**1.004**
360. The Netherlands	**1.015**	**1.000**	**1.021**	**0.998**	**0.995**
370. Denmark	**1.052**	**0.997**	**1.057**	**1.012**	**0.985**
380. Ireland	**1.012**	**1.018**	**0.990**	**0.995**	**1.009**
411. England-North	1.007	0.992	1.012	1.000	1.006
412. England-East	1.005	0.989	1.012	0.998	1.002
413. England-West	1.008	0.991	1.012	1.000	1.006
421. Wales	1.011	0.994	1.009	0.995	1.002
431. Scotland	1.007	0.997	1.021	0.985	1.008
441. Northern Ireland	1.005	0.983	1.006	0.996	1.011
United Kingdom	**1.007**	**0.991**	**1.012**	**0.996**	**1.006**
450. Makedonia/Thraki	0.978	0.997	0.991	0.992	1.016
460. Ipiros/Peloponissos/Nissi Ioniou	0.993	0.980	1.032	1.011	0.979
470. Thessalia	0.987	1.003	0.992	0.997	0.989
480. Sterea Ellas/Nissi Egaeou/Kriti	0.982	0.994	0.980	1.012	0.978
Greece	**0.985**	**0.994**	**0.993**	**1.003**	**0.989**
500. Galicia	0.989	1.000	1.017	1.005	0.987
505. Asturias	0.981	0.994	1.178	1.004	0.983
510. Cantabria	1.009	0.992	1.073	0.999	0.984
515. Pais Vasco	1.000	1.013	1.007	0.999	0.999
520. Navarra	0.993	0.997	1.002	0.996	0.995
525. La Rioja	1.003	0.997	0.992	1.014	0.992
530. Aragón	1.006	1.002	1.031	0.996	0.988
535. Cataluna	1.010	1.020	1.002	1.001	1.003
540. Baleares	1.003	1.001	0.985	0.997	1.012
545. Castilla-León	0.997	0.984	0.997	1.004	0.983
550. Madrid	0.991	1.021	1.004	1.001	1.010
555. Castilla-La Mancha	1.005	1.003	1.008	0.993	1.012
560. Comunidad Valenciana	1.012	0.988	1.046	1.025	0.992
565. Murcia	1.019	1.006	0.955	0.997	0.980

FADN region code and name	MI	DTE	TP	DScale	DShape
570. Extremadura	0.999	1.004	1.006	1.007	0.993
575. Andalucia	1.005	1.010	0.994	1.008	0.997
580. Canarias	0.970	0.985	1.011	0.995	1.320
Spain	**1.000**	**1.000**	**1.004**	**1.002**	**1.013**
610. Entre Douro/Minho/Beira litoral	1.001	0.990	0.876	1.008	1.096
630. Ribatejo/Oeste	1.034	1.027	1.000	1.004	0.991
640. Alentejo/do Algarve	1.008	1.019	0.983	1.000	1.360
650. Açores	0.994	1.007	0.896	0.995	1.040
Portugal	**1.009**	**1.010**	**0.965**	**1.002**	**1.011**