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Small Farms in the EU: How Small is Small?

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Abstract

This paper discusses and explores different approaches to the definition of small in relation to farms in the EU. It focuses on distributions of farms using different size criteria, making comparisons of the extent to which one criterion maps onto another. Differences in farm structure that exist between and within both the established and new Member States make it particularly difficult to determine a unique definition of smallness, suggesting perhaps the use of a relative rather than absolute measure of size.

Keywords: small farms, European Union, farm size, subsistence

1. Introduction

Despite predictions from academics regarding the demise of small farms in the long-run (e.g. Sarris *et al.*, 1999), small farms still dominate the agriculture in developing and transition countries and thus their role cannot be ignored. Moreover, with the recent accessions to the European Union (EU) of the Central and Eastern European Countries (CEECs), along with Malta and Cyprus, the debate concerning small farms has been given added salience among EU policy-makers. Additionally, even across the established Member States (EU15) the number of small farms did not diminish as quickly as expected in the agricultural development process of the EU (von Braun, 2005). The example of Ireland is notable in this respect, as farm structure hardly changed for almost two decades following EU accession in 1973 (Hubbard and Ward, 2007). Recent events - the global increase in demand for food, the development of biofuels, the rise in food prices, the climate changes affecting agricultural production worldwide, and an increasing public awareness for the preservation of environment and the countryside – have led the Council of the European Union (in May 2008) to re-consider the role of small farms, and the European Commission has been asked to evaluate the potential benefits of this type of agriculture at the European level.

The absence of any objectives within the Common Agricultural Policy (CAP) regarding the role and functions of small farms has also contributed to the limited research on the meaning of ‘smallness’, particularly from a conceptual and methodological point of view. The design of the CAP from the outset, and subsequently in its reforms, not only ignored small farms, but forced them either to amalgamate or exit the sector via structural change. Small farms were perceived as an obstacle in the modernisation of EU agriculture. The heterogeneity and complexity that characterise the farming sector in the an enlarged EU add to the difficulty of defining exactly what is meant by a small farm.

Some may argue that the debate is not about the size of the farm *per se*, but what objectives small farms should fulfil from a political point of view. What is to be expected of these farms and what purpose do they serve? Nevertheless, when talking about small farms, the debate will typically gravitate to a definition of smallness. How small is small? This paper explores and discusses different approaches to the definition of small in relation to farms in the newly enlarged EU. It focuses on distributions of farms by size, and uses different size criteria in making comparisons and exploring the extent to which one criterion maps onto another. The paper highlights how differences in size criteria might impact upon the prevalence of small farms in the EU27. The paper is organised as follows. Section 2 reviews and discussed various definitions of “smallness”. Sections 3 and 4 focus on measures of farm size (area, economic size and labour input) emphasising the major differences in farm distributions within and between new and established Member States. Some concluding remarks are presented in Section 5.

2. Definitions of Small Farms

The literature exhibits a large degree of uncertainty over what is meant by ‘small farms’ and it is unclear where the dividing line between small and large farms should be drawn. Often, small farms are associated with low-income groups, which rely on limited resources (in terms of both quality and quantity), produce mostly for their own consumption and are not economically viable (e.g. Nagayets, 2005, Dixon *et al.*, 2003, Narayanan and Gulati, 2002, Sarris *et al.*, 1999). However, although the ‘efficiency paradigm’ of small farms or the ‘farm-

size-productivity' debate dates to Schultz (1964), the argument amongst academics regarding the economic viability and the role of small farms versus large farms (e.g. Lipton, 2006; Lerman and Sutton, 2006; Ellis and Biggs, 2001, and Rossett, 2000, 1999,) is still very vivid.

Subsistence or semi-subsistence farming are terms also used when describing and analysing small farms. Within the EU this applies particularly to the newly acceded Member States from Central and Eastern Europe (e.g. Chaplin *et al.* 2007; Birol *et al.*, 2006; Abele and Frohberg 2003; von Braun and Lohlein, 2003 and Kostov and Lingard, 2002). These terms are often used interchangeably as they share a common denominator, *i.e.* the livelihood of the farmer and his family. Mosher (1970) defined subsistence farmers as those who sell less than half of their production, whereas Doppler (1991) defines as subsistence those farms which consume at least 90% of their production. However, strict dictionary definitions of subsistence farming (e.g. Economics Dictionary, Geography Dictionary and Encyclopaedia Britannica) exclude the market/trade element¹, which is more closely associated with the 'semi-subsistence' concept. Ellis (1989, p.9) subscribes to these by defining subsistence as the "proportion of farm output which is directly consumed by the household rather than sold in the market". This is supported by Kostov and Lingard (2002, p.84) who define subsistence production (for Bulgaria) as "non-marketed production, which is consumed within the household". More recent work carried out on the New Member States (NMS), particularly Romania and Bulgaria, also focuses on small farms and the importance of subsistence/semi-subsistence (Fritsch *et al.*, 2009, Beaufoy *et al.*, 2008 and Cionga *et al.*, 2008). Typically, a subsistence farmer will own less than 1 hectare (ha) in Bulgaria or less than 2 ha in Romania, managed in small plots of land (used for vegetables, orchards, vineyards or fodder crops) and has at least one animal (pig or cow) and a number of fowl and sheep (Beaufoy *et al.*, 2008). Additionally, these farmers do not produce for the market, but for themselves. The national Rural Development Programmes (RDP) for 2007-2013 estimate some 3.4 million subsistence farms in Romania and half a million in Bulgaria.

Officially, at the EU level, semi-subsistence farms are defined as those "agricultural holdings which produce primarily for their own consumption and also market a proportion of their output"². This definition was introduced as part of the Accession Act for farms undergoing restructuring in Romania and Bulgaria to help ease their rural transition, but applies also to other NMS (e.g. Poland). However, the proportion of output sold onto the market lies with the farmer/holder. For example, in Bulgaria and Romania most is consumed within the household. Using recent (2005) Eurostat data, it is estimated that some 70% of total farms³ in Bulgaria and 81% in Romania self-consume more than half of their production. This is due not only to a culture and tradition of preserving food (Firici, 2003, Kostov and Lingard, 2002) but also to the socio-economic buffer role played by the semi-subsistence farming in these countries (Fritsch *et al.*, 2009, Petrovici and Gorton, 2005 Kopeva *et al.*, 2003). Nevertheless, it is also the opportunity cost of this non-market element which matters and thus its importance should not be neglected (Hubbard and Thomson, 2007).

The heterogeneity and complexity of farms across the EU27 make comparison a very difficult and challenging task. Thus, to ease comparison at the EU level, the Eurostat defines subsistence/semi-subsistence farms as those with an economic size below 1 ESU⁴. Implicitly,

¹ Subsistence farming is a form of farming in which nearly all of the crops or livestock raised are used to maintain the farmer and his family, leaving little, if any, surplus for sale or trade (Encyclopaedia Britannica).

² Council Regulation (EC) 1698/2005, Article 34 (1) on support for rural development by the EAFRD.

³ For convenience, throughout this paper a farm is equal to an agricultural holding.

⁴ Economic Size Unit; 1 ESU = €1,200 Standard Gross Margin (SGM). For each activity ("enterprise") on a holding or farm (e.g. wheat, dairy cow or vineyard) a SGM is estimated, based on the area (or the number of

these are “labelled” as small or very small units. Across the EU, data is collected through the Farm Structure Survey (FSS), which runs every two years and covers all agricultural holdings with a utilised agricultural area (UAA) of at least 1 ha and those with less than 1 ha if their market production exceeds the established national threshold⁵. Although there is a general perception that small units (as defined by Eurostat) are a characteristic mainly of the NMS, agricultural holdings with less than 1 ESU are also present in some established Member States, such as Italy and Greece (17% of farms), Austria and Sweden (21%), Portugal (34%) and the UK (40%)⁶. At the EU27 level, some 47% of the survey holdings were considered as small units, a slight increase (less than 1% point) on the 2005 figure. Interestingly, between 2005 and 2007, the number of these small units increased in countries such as the UK, Austria, Sweden and Portugal, but decreased slightly in Italy, Greece and Spain. The rise and fall in the number of these small units across countries might be explained by the implementation of the Single Farm Payment Scheme. The Netherlands is the only member state in which there are no such small units.

Occasionally, small farms are associated with family farms (e.g. Gasson *et al.*, 1988 and Tranter, 1983), but ‘small’ and ‘family’ are not necessarily identical concepts (Hill, 1993). However, the association between family and small farms is linked to the amount of labour input provided by the family members and whether the farming covers the largest share of the farm income. Thus, if the “family provides all the physical and managerial labour ... even quite small farms might not comply with this rather severe criterion if they hired some non-family labour” (Hill, p.361). Within the EU, family farms are especially characteristic to Western Europe where farming is primarily a family business. In contrast, farming in Central and Eastern Europe has a more diverse set of actors (Gorton *et al.*, 2009).

The definition of a small farm is also linked widely to its size, expressed either in hectares or number of livestock owned or managed (von Braun, 2005), but size *per se* is not necessarily a defining feature. Ntsebeza and Hall (2007, p.155) argue that it is “the productive capacity controlled by the farmer” which matters more and what determines a small farm will actually vary considerably due to differences in land qualities, access to resources, weather conditions, market and technology development and the opportunity costs of capital and labour in the economy. However, von Braun (2005, p.23) stresses that “such a refined definition” with which “to capture these institutional and technical characteristics is currently not feasible due to a lack of internationally comparable statistics”.

Against this background, it is clear that defining small farms remains a challenging issue. Given the complexity of this subject, the heterogeneity and diversity of farms across the EU27 and the availability of comparable data, for the purpose of this paper three criteria will be considered when analysing “small” farms, *i.e.* area, economic size and labour input, with a focus on farms with less than 10 ha, less than 8 ESU and less than 2 Annual Work Units. Official data provided by the Eurostat database will be used as the main source.

heads) and a regional coefficient. The sum of all margins, for all activities of a given farm, is referred to as the economic size of that farm.

⁵ Given the diversity of farming activity, the threshold must be either defined for each production or based on measurement, common to every agricultural activity (enterprise) (Eurostat, 2005).

⁶ Own estimation based on Eurostat database. Figures refer to 2007.

3. UAA as a Measure of Size

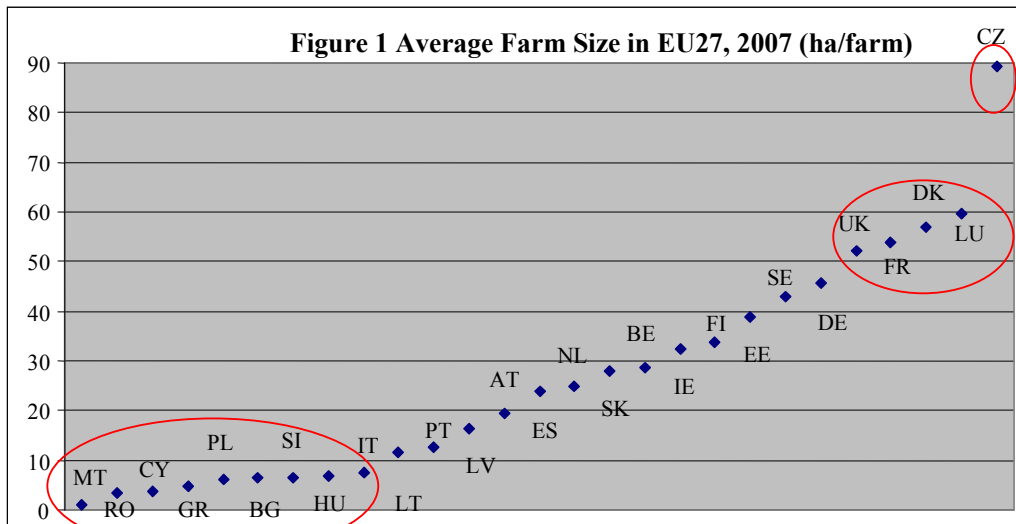
Average farm size across the EU27 is insightful for two reasons. First, it highlights the inter-country differences, illustrating the high level of heterogeneity in farm size across member states. Second, for those who argue for a relative measure of smallness it offers a simple basis for a country-specific measurement; for example, smallness could be defined as the average farm size minus one standard deviation.

Table 1 presents data for total farm holdings in the EU27, which number slightly less than 14 million, covering some 173 million ha of UAA. This leads to an average farm size (measured in UAA) at the EU27 level of around 13 ha. However, as illustrated by Figure 1, there is a significant variation across member states, e.g. from less than 1 ha/farm in Malta to around 90 ha/farm in the Czech Republic. Thus, when compared to the EU27 average, the average farm size in, for example, Malta and Romania might look very small. In contrast, the Czech Republic average looks very high. This illustrates clearly the degree of relativity in the meaning of smallness, as what is ‘small’ for one country may be considered ‘large’ in another country.

Table 1 Total farm holdings in the EU, 2007

	EU15	EU12	EU27
	(% of EU27)		(million)
Nos. of holdings	41	59	13.7
Total UAA (ha)	72	28	172.5
Average (ha/farm)	22	6	12.6

Source: own calculation based on Eurostat database



Source: own estimation based on Eurostat database

A comparison between average farm size in the EU12 and the EU15 shows the dominance of the latter. Measured in UAA, the average holding in the EU15 is 3.5 times larger than in the EU12 (Table 1). However, even within the EU15 and EU12, different clusters can be identified. For example, Greece, Italy and Portugal have around 10 ha/farm or less, as opposed to at least 52 ha/farm in countries such as France, the UK, Luxembourg and Denmark. When measured against the EU15 average, the first group of countries could be considered as having a small average farm size. The opposite applies for the second group. Within the EU12, the heterogeneity is even larger, with three countries (Malta, Cyprus and Romania) well below the EU12 average at one extreme and the Czech Republic at the other.

Of interest is the change in the average farm size in both new and established Member States in recent years. Overall, there is a clear tendency for farm enlargement, and this phenomenon is noticeable mostly in the countries which joined the EU in May 2004. For example, the average UAA per farm increased by 80% in Estonia, by over 40% in Latvia and by 20% in Hungary between 2003 (the year before accession) and 2007. However, some countertrends can be observed within the EU15 where countries such as the UK, Sweden and Greece have experienced a decrease in their UAA average. Most remarkable is the reduction by 21% of the UAA average in the UK, from 68 ha/farm in 2000 to 54 ha/farm in 2007. This significant drop is mainly due to the various measures imposed on farms (e.g. restriction on livestock transportation) after the 2000 Foot and Mouth crisis which led to land fragmentation, and most recently due to the implementation of the Single Farm Payment (SFP) Scheme. The latter argument applies also to Sweden (Copus and Knobbloch, 2007).

Table 2 presents data for farm holdings with less than 10 ha, which for this analysis will be considered as a threshold for smaller units, being almost 3 ha less than the EU27 UAA average. Overall, there are 11 million of these farms or 80% of the total number, with more than half in the EU12. They cover, however, only 15% of the total UAA in the EU27, with an approximately equal split between the EU15 and EU12.

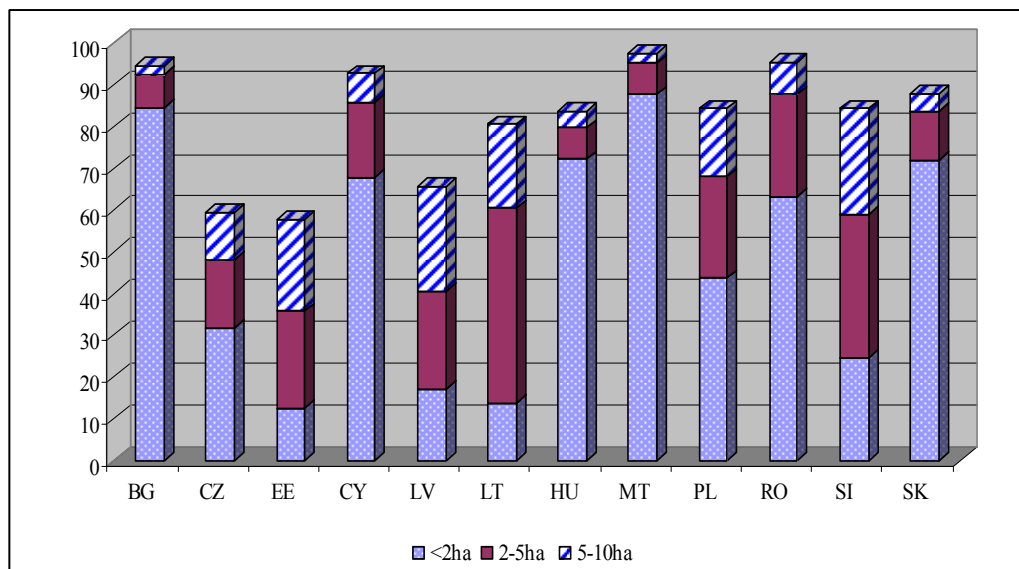
Table 2 Smaller farms, EU27, 2007 by UAA

Number	EU15	EU12	EU27
	% of EU27		Million
< 2 ha	13.2	33.4	6.4
2 – 5 ha	8.7	13.3	3.0
5 – 10 ha	5.3	6.1	1.6
Total (< 10 ha)	27.2	52.7	11.0
Total UAA	% of EU27		million ha
< 2 ha	1.0	1.8	4.9
2 – 5 ha	2.2	3.3	9.5
5 – 10 ha	3.0	3.3	10.9
Total (< 10 ha)	6.2	8.5	25.3

Source: own calculation based on Eurostat Database

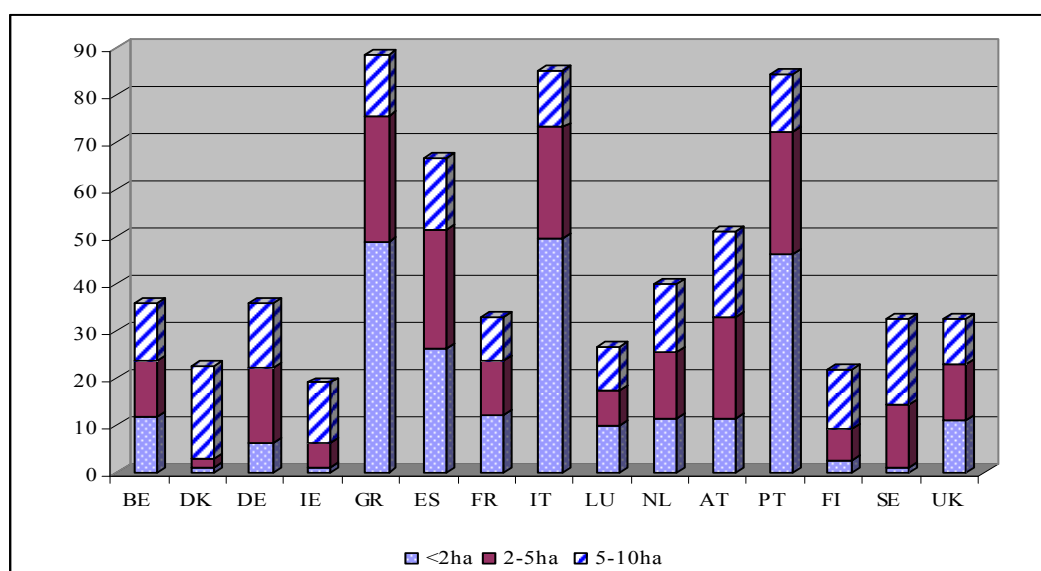
Within the EU12, farms with less than 10 ha account for the majority and with the exception of the Czech Republic and the two Baltic countries (i.e. Estonia and Latvia), all other member states have more than 80% of their total of farms included in this category (Figure 2). The situation is different within the EU15 where only Italy, Greece and Portugal have more than 80% of their farms with less than 10 ha (Figure 3). Ireland has the smallest share (19%), followed closely by Finland and Denmark.

Figure 2. Distribution of Smaller Farms by UAA, EU12, 2007



Source: own construction based on Eurostat Database

Figure 3. Distribution of Smaller Farms by UAA, EU15, 2007



Source: own construction based on Eurostat Database

Almost half (47%) of the holdings in the EU27 have an average size of less than 2 ha, covering less than 3% of total UAA (Table 2). In terms of the split between the established and new Member States, the EU12, has approximately twice as many of these ‘smaller’ farms than the EU15 (Table 2). One in four farms within the EU12 has less than 2 ha. Although the majority (77%) are located in Romania (2.5 million) and Poland (1.04 million), this category dominates the farm structure in most of the new Member States. For example, they represent more than 84% of the total number of farms in Malta and Bulgaria, 72% in Hungary and Slovakia whereas in Romania and Poland they represent 63% and 44%, respectively. As expected, with the exception of Malta, these farms account only for a small share of the country’s total UAA; e.g. only 1.4% in Slovakia, 3.4% in Hungary, 5% in Poland and 6% in Bulgaria. Interestingly, the share of these farms in the total number is much lower in the Baltic States (i.e. Estonia 12.4%, Latvia, 13.8 and Lithuania 17.2%). This underlines the lack of communality in farm structure across the new Member States. This contrasts with the situation in the EU15 where farms with less than 2 ha account for 13% of total farms and cover only 1% of UAA. However, within the EU15 there is a clear distinction between the south and the north countries. Farms with less than 2 ha are mostly present in Greece, Italy and Portugal where they account for almost half of their total number, whereas in Denmark, Sweden and Ireland they represent only 1%.

When examining the evolution of this category of farms there is a clear downward trend for both EU15 and EU12 member states. The number of EU15 farms with less than 2 ha has decreased by 23% between 2000 and 2007. However, the decline varies between 51% in Ireland and 22% in Finland. Of interest, are the changes recorded in the UK, where the number of agricultural holdings with less than 2 ha has increased by 63%, between 2000 and 2005, followed by a 5% drop between 2005 and 2007. Additionally, in the UK, the number of the farms with 2 to 5 ha went up by 63% between 2000 and 2007. However, farms with less than 2 ha account for less than 1% of total UK farms. An increase of 7% can be also observed in Greece.

A descending trend in the number of farms with less than 2 ha is also noticeable within the EU12, and some may argue that it is to be expected following EU accession. Hence, between 2003 and 2007, the number of farms with less than 2 ha dropped by 15%, but the variation is much larger across countries. For example, Estonia and Latvia experienced the largest drops (61% and 40% respectively) whereas in their neighbour Lithuania, the number of these farms decreased only by 7%. Remarkable also is the case of Poland where the number of farms with less than 2 ha increased by 30% between 2003 and 2005 (a year and a half after accession) but fell by 10% between 2005 (the start of the application of the Single Area Payment (SAP) scheme) and 2007. The exception is Slovenia where a slight increase of 8% occurred between 2003 and 2007. Hence, there is little doubt that the implementation of the SFP/SAP has an effect on farm structure across the EU27. However, the impact depends on the way the SFP/SAP scheme is implemented by each individual country. This is particularly important for the EU12 countries, where for farm efficiency considerations as well as for avoiding additional administrative burdens, a threshold of at least 1 ha has been imposed as the minimum eligible size for direct payments.

4. Alternative Measures of Size

An alternative to the use of UAA as a criterion of size classification is the Economic Size Unit (ESU), based on Standard Gross Margin and therefore a measure of economic output. There is a close match between farms < 8 ESU and those < 10 ha, in terms of total numbers and the split between the EU15 and EU12 (Tables 2 and Table 3). For example, the total number of farms < 1 ESU is the same as the number of farms < 2 ha (though not necessarily the same farms), and the same is true for farms of < 8 ESU and < 10 ha. Using ESU as a measure of size, there are, as with UAA, approximately twice as many ‘smaller’ farms in the EU12 as compared to the EU15. Unsurprisingly, the same individual member states – Romania, Poland and Italy – dominate these numbers across the EU27.

Table 3 Smaller farms in EU27 by ESU, 2007

Number	EU15	EU12	EU27
	% of EU27		million
< 1 ESU	6.5	40.2	6.4
1- < 2 ESU	5.3	8.9	1.9
2- < 4 ESU	6.8	4.4	1.5
4- < 8 ESU	6.5	2.5	1.2
Total (< 8 ESU)	25.1	56.0	11.0
	% of EU27		million ha
Total ESU			
< 1 ESU	0.3	1.3	2.5
1- < 2 ESU	0.7	1.1	2.8
2- < 4 ESU	1.7	1.1	4.4
4- < 8 ESU	3.3	1.2	7.0
Total (< 8 ESU)	6.0	4.7	16.7

Using ESU as a measure of size, these ‘smaller’ farms account for 11% of the total ESU in the EU27, a somewhat smaller proportion than that of UAA when using area as the unit of measurement. However, this difference is accounted for entirely by the EU12, reflecting perhaps their lower economic output and the presence of subsistence farming (Table 3).

A third possible measure of farm size is labour input, measured here as Annual Work Units (AWU). Again, there is a close match between farms with < 2 AWU and those with < 10 ha or those with < 8 ESU, in terms of total numbers and the approximate 2:1 split between the EU12 and EU15 (compare Tables 2, 3 and 4). However, these farms' share of the total AWU for the EU27 is 38%, compared to corresponding shares of 15% of total UAA and 11% of total ESU. This much larger share probably reflects the lack of economies of size with respect to labour, in both the EU12 and EU15.

Table 4 Smaller farms in EU27 by AWU, 2007

Number	EU15	EU12	EU27
	% of EU27		million
< 0.5 AWU	12.6	22.0	5.0
0.5 - < 1 AWU	6.8	12.2	2.8
1- < 2 AWU	7.0	14.1	3.1
Total (< 2 AWU)	26.4	48.3	10.8
Total AWU	% of EU27		million
< 0.5 AWU	2.4	3.6	764
0.5 - < 1 AWU	3.5	6.4	1,265
1- < 2 AWU	7.2	14.9	2,806
Total (< 2 AWU)	13.1	24.9	4,835

Source: own calculation based on Eurostat database

To further explore the match between the three measures of size, correlation coefficients were calculated between average UAA, average ESU and average AWU, using data for the individual member states and the four class sizes with < 8 ESU. These are presented in Table 5 for the EU15 and EU12. The correlations are considerably higher for the EU12 (0.63 – 0.69) than for the EU15 (0.36 – 0.48), but similar for each pairing (UAA:ESU; UAA:AWU; ESU:AWU) within each group. This suggests a better (linear) match between the three measures for the new member states. (Ideally, this correlation needs to be done using individual observations rather than group averages.)

Table 5 Correlation coefficients

EU15	UAA	ESU
UAA		
ESU	0.36	
AWU	0.39	0.48
EU12		
UAA		
ESU	0.64	
AWU	0.63	0.69

The foregoing cursory examination of the three alternative measures of farm size – UAA, ESU and AWU – suggests a fairly close match. This could be significant because the closer

the correspondence between different measures, the less important it becomes as to which measure is chosen, and *vice versa*. As such, this issue deserves further research.

However, this does not answer the question as to what is small. If the threshold is set at < 2 ha or < 1 ESU, then almost half (six million) of farm holdings in the EU27 are small. Using a threshold of < 1 AWU, the proportion increases to over half (8 million). In all cases, the vast majority of these small farms are in the EU12. But as mentioned earlier in the paper, the structural differences that exist between (and within) the established and new member states raise the question as to whether size should be measured relatively rather than in absolute terms. For example, small farms could be defined in relation to an individual member state's mean or modal size of farm. Yet another issue for further research.

5. Concluding Remarks

This paper explores and discusses different approaches to the definition of smallness in relation to farms and highlights how the differences in size criteria impact upon the prevalence of small farms in contrasting Member States. However, the heterogeneity and variety of the EU27 farms make the task of defining small farms a challenging issue. Three different measures of size (UAA, ESU and AWU) were used to define small farms. Although size *per se* is subject to debate, the size-based definition was driven by the availability of comparable empirical data at the EU27 level. The paper has focused on absolute measures of smallness. However, the structural differences that exist between (and within) the established and new Member States raise the question as to whether size should be measured relatively rather than in absolute terms.

The clarification of what “small” means should be of utmost importance for policy makers, given the heterogeneity and variety of farms that characterise the EU after the recent enlargements. The distribution of farms across the EU shows clearly a prevalence of farms with less than 10 ha, less than 8 ESU and less than 2 AWU. All three classifications account for more than three quarters of total farms. Hence, they are extremely important in number. Some may argue that these categories have little relevance in terms of land use and economic size. Indeed, EU farms with less than 10 ha cover only 15% of total UAA and 11% of total ESU. Until now the CAP has ignored objectives regarding the role and functions of small farms, but following recent enlargements the majority of these farms are now located mainly in the new Member States and there is a clear need for this issue to be addressed.

Rossett (1999) argues that the role of small farms extends beyond the assurance of family livelihoods. Small farms also promote regional economic development, by supporting rural communities and preserve better the landscape and countryside. Hence, the need for a clearer definition of what is meant by ‘small’ should be on the agenda of policy makers. Otherwise, the supposition of Carlin and Crecink (1979, p.939) made almost three decades ago that an imprecise definition “may serve the policy process quite well” might still apply.

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